

Utah State Implementation Plan

Section XX

Regional Haze

**Addressing Regional Haze Visibility Protection for the Mandatory Federal Class I
Areas Required Under 40 CFR 51.309**

Adopted by the Air Quality Board
June 2, 2004

TABLE OF CONTENTS

A.	EXECUTIVE SUMMARY	1
B.	BACKGROUND ON THE REGIONAL HAZE RULE.....	3
	1. Introduction.....	3
	2. Definitions.....	3
	3. 1977 Clean Air Act	3
	4. Reasonably Attributable Visibility Impairment SIP	4
	5. 1990 Clean Air Act	5
	6. Grand Canyon Visibility Transport Commission	5
	7. Western Regional Air Partnership	6
	8. Mandatory Federal Class I Areas Addressed in 2003 SIP	7
C.	LONG-TERM STRATEGY FOR THE CLEAN-AIR CORRIDOR.....	10
	1. Regulatory History and Requirements	10
	2. Identification of the Clean-Air Corridor; Other Clean-Air Corridors.....	11
	3. Strategy for Clean Air Corridors.....	13
	a. Comprehensive emissions tracking program.....	13
	b. Patterns of growth within the clean-air corridor.....	13
	c. Patterns of growth outside the clean-air corridor.	13
	d. Actions if impairment inside or outside the clean-air corridor occurs.....	14
D.	LONG-TERM STRATEGY FOR STATIONARY SOURCES	15
	1. Regulatory History and Requirements	15
	2. Achievement of a 13% or Greater Reduction of Sulfur Dioxide Emissions by 2000.....	15
	3. Strategy for Stationary Sources of Sulfur Dioxide.....	16
	a. 2018 Milestone 17	
	b. Interim Milestones	17
	c. Triggering the Trading Program	18
	d. Certainty that 2018 Milestone Will Be Met on Time.....	18
	e. Trading Program Features.....	18
	f. Allocations 18	
	g. State and Tribal Opt-In or Opt-Out.....	18
	4. Geographic Enhancement Program.....	19
	a. Procedure for addressing Reasonably Attributable Visibility Impairment under the Regional Haze Rule.....	19
	5. Report on Assessment of NO _x /PM Strategies.....	19
	a. Assessment of Need for NO _x and PM milestones.	19
E.	SULFUR DIOXIDE MILESTONES AND BACKSTOP TRADING PROGRAM.....	21
	1. Milestones and Determination of Program Trigger	21

a.	Regional Sulfur Dioxide Milestones	21
b.	Regional Program Administration.....	24
c.	Determination of Program Trigger.....	25
d.	Year 2013 Assessment	30
e.	Special Penalty Provisions for the 2018 Milestone.....	32
2.	Pre-Trigger Emissions Tracking Requirements	32
a.	SO ₂ Emission Inventory	32
b.	Development of Emission Tracking System	33
c.	Periodic Audit of Pre-Trigger Emission Tracking Database.....	33
3.	WEB Trading Program Requirements	34
a.	Initial Allocation of SO ₂ Allowances	34
b.	Distribution of Allowances for Future Control Periods	43
c.	Distribution of the New Source Allocation	43
d.	Regional Tribal Set-aside.....	45
e.	Opt-in Sources 45	
f.	WEB Allowance Tracking System (WEB ATS).....	45
g.	Allowance Transfers	47
h.	Use of Allowances from a Previous Year	48
i.	Monitoring/Recordkeeping	50
j.	Compliance and Penalties	52
k.	Periodic Evaluation of the Trading Program.....	53
l.	Retired Source Exemption	55
m.	Integration into Permits.....	56
4.	2013 SIP Revision; Backstop for Beginning of Second Planning Period.....	56
F.	LONG-TERM STRATEGY FOR MOBILE SOURCES.....	57
1.	Regulatory History and Requirements	57
2.	Inventory of Current and Projected Emissions from Mobile Sources	58
a.	Inventory of Current and Projected Emissions from Mobile Sources.	58
b.	Program to assure continuous decline in mobile source emissions.	59
c.	Backstop provision to address potential increase in non-road emissions in the event Federal standards are not finalized.	59
3.	Other GCVTC Strategies for Mobile Sources	59
G.	LONG-TERM STRATEGY FOR FIRE PROGRAMS	60
1.	Regulatory History and Requirements	60
2.	Prescribed Fire Program Evaluation	60
a.	Wildlands Fire 61	
b.	Agricultural Fire 62	
3.	Emission Inventory and Tracking System	63
a.	Wildlands Inventory.....	63
b.	Agricultural Lands Inventory	64
4.	Identification and Removal of Administrative Barriers.....	64
5.	Enhanced Smoke Management Program	64

a.	Actions to Minimize Fire Emissions	65
b.	Evaluation of Smoke Dispersion	65
c.	Alternatives to Fire.....	65
d.	Public Notification of Burning.....	65
e.	Air Quality Monitoring	65
f.	Surveillance and Enforcement	65
g.	Program Evaluation.....	66
h.	Burn Authorization	66
i.	Regional Coordination	66
j.	ESMP for Agricultural Burning	66
6.	Annual Emission Goals.....	66
H.	ASSESSMENT OF EMISSIONS FROM PAVED AND UNPAVED ROAD DUST	67
1.	Regulatory History and Requirements	67
2.	State of Utah Long-term Strategy for Road Dust Sources	67
a.	Assessment of Paved and Unpaved Road Dust Emissions.....	67
b.	Contribution to Visibility Impairment Finding.....	68
I.	POLLUTION PREVENTION AND RENEWABLE ENERGY PROGRAMS	69
1.	Description of Existing Pollution Prevention Programs in Utah	72
2.	Inventory of Renewable Energy Generation Capacity and Production in 2002	72
3.	Inventory of Total Utah Capacity and Production in 2002	74
4.	Percent of Total Energy Generation Capacity and Production Derived from Renewable Energy	75
5.	Anticipated Contribution Toward Meeting the 10/20 Renewable Energy Goals	76
a.	States' Contributions to the Regional Renewable Energy Generation Goal	76
b.	Utah's Anticipated Contribution Toward Meeting the 10/20 Renewable Energy Goals	77
6.	State of Utah Programs to Encourage Early Compliance	78
a.	Western Backstop SO ₂ Trading Program Early Reduction Credits.....	78
b.	Western Backstop SO ₂ Trading Program Renewable Energy Credits.....	78
7.	Summary of Utah Programs to Expand Energy Conservation.....	79
8.	Areas Where Power Is Lacking and Renewable Sources Can Supply It	79
9.	Projections of Emissions Reductions, Visibility Improvements, Cost Savings and Secondary Benefits from Pollution Prevention and EERE Measures	81
a.	Regional Approach to Analyses.....	81
b.	Projections of Emissions Reductions, Visibility Improvements, Cost Savings and Secondary Benefits from Pollution Prevention and EERE Measures.....	82
10.	Utah Programs to Meet the Regional Renewable Energy Goals	88
a.	Summary of Utah Programs	88
b.	Potential for Renewable Energy Resources	89
J.	OTHER GCVTC RECOMMENDATIONS.....	98
1.	Regulatory History and Requirements	98
2.	Other State of Utah Long-term Strategy Components	98

a.	Evaluation of Additional Grand Canyon Visibility Transport Commission Recommendations.	98
b.	Implementation of Additional Recommendations.	98
K.	PROJECTION OF VISIBILITY IMPROVEMENT ANTICIPATED FROM LONG-TERM STRATEGY	99
1.	Effect on Emissions of Long-term Strategy Components.....	99
a.	Inventory Methodology and Scope	99
b.	Projected Changes in Emissions for Utah	100
2.	Projected Changes in Visual Air Quality	101
a.	Applicable Class I Areas	101
b.	Projected Visibility Improvement	101
L.	PERIODIC IMPLEMENTATION PLAN REVISIONS	104
1.	Periodic Progress Reports for Demonstrating Reasonable Progress.....	104
2.	Actions To Be Taken Concurrent with Periodic Progress Reports.....	104
M.	STATE PLANNING/INTERSTATE COORDINATION AND TRIBAL IMPLEMENTATION	106
1.	Participation in Regional Planning and Coordination	106
2.	Applicability to Tribal Lands	106

LIST OF TABLES

Table 1. Executive Summary of Long-Term Strategies	1
Table 2. State-by-State Comparison of 1990 and 2000 Stationary Source Sulfur Dioxide Emissions in the 9 GCVTC Transport Region States (tons per year).....	16
Table 3. Base Sulfur Dioxide Emissions Milestones (excludes Smelter Set- aside).....	21
Table 4. (Years 2003-2018) Amounts of SO₂ Tons To Be Subtracted from the Base Milestones for States and Tribes That Do Not Have an Approved Implementation Plan under 40 CFR 51.309*	22
Table 5. Preliminary Smelter-Specific Set Aside	24
Table 6. Utility/Non-utility Split	38
Table 7. New Source Set-Aside Adjustment	39
Table 8. Mobile Source Inventory for 2003 and 2018	59
Table 9. Agricultural Burning Emissions Comparison	62
Table 10. Summary of Information Requirement for Pollution Prevention	69
Table 11. Utah Renewable Electric Power Industry Capacity (Megawatts)	73
Table 12. Utah Renewable Electric Power Industry Generation (Megawatt- hours).....	74
Table 13. Utah Capacity by Source (Electric Power Annual). (Megawatts)	75
Table 14. Utah Net Generation by Source, 1999-2002 (Thousand Megawatt- hours).....	75
Table 15. Utah Consumption of Renewable Power; 2000-2002 (Gigawatt- hours).....	76
Table 16. Programs to Preserve and Expand Energy Conservation Efforts.....	79
Table 17. Annual Average (2005-2020) Changes for Key Economic Indicators	87
Table 18. Utah Renewable Energy Program Descriptions.....	89
Table 19. Utah Land-fill Gas Resources	96
Table 20. Summary of the Change in Emissions from 1996-2018 for Utah Sources (Thousands of Tons per Year)	101
Table 21. Changes in Emissions from 1996 - 2018 for 9 GCVTC States (Thousands of tons per year).....	101
Table 22. Projected Visibility Improvement at the 16 Colorado Plateau Class I Areas in 2018, on the Average 20% Best Visibility Days, Resulting from Implementation of "All §309 Control Strategies"	102
Table 23. Projected Visibility Improvement at the 16 Colorado Plateau Class I Areas in 2018 on the Average 20% Worst Days, Resulting from Implementation of "All §309 Control Strategies"	103

LIST OF FIGURES

Figure 1. 16 GCVTC Class I Areas Addressed by 40 CFR 51.309	8
Figure 2. Utah Class I Areas Addressed by 40 CFR 51.309.....	9
Figure 4. Utah's Transmission and Distribution Network.....	80
Figure 5. Forecast Renewable Energy Capacity Additions to Meet 10/20 Goals.....	83
Figure 7. Potential NO_x Emissions Reductions from Meeting the 10/20 Goal and Implementing Energy Efficiency Recommendations.	84
Figure 8. Potential CO₂ Emission Reductions From Meeting the 10/20 Goal and EE.....	85
Figure 9. Annual Levelized Production Costs for Business-As-Usual and Efficiency.	86
Figure 10. Annual Levelized Production Costs for BAU and Meeting the 10/20 Goal.	87
Figure 11. Solar Energy Potential in Utah.....	91
Figure 12. Geothermal Energy Potential in Utah.	92
Figure 13. Wind Energy Potential in Utah.	94
Figure 14. Biomass Energy Potential in Utah.....	95

APPENDICES TO THE SIP

TABLE OF CONTENTS

Appendix A	Definitions
Appendix B	WEB Trading Program Monitoring Protocols
Appendix C	Projection of Visibility Improvement

A. EXECUTIVE SUMMARY

This document comprises the State of Utah's State Implementation Plan (SIP) submittal to the U.S. Environmental Protection Agency (EPA) under the Regional Haze Rule in Section 309 of Title 40 of the Code of Federal Regulations, Part 51 (40 CFR 51.309). Part B includes introductory and background information. The remaining parts identify the SIP requirements under Section 309 and detail how Utah is addressing those requirements, and appendices include more detail about certain parts. Table 1 is a brief summary of each of the 309 SIP requirements along with Utah's approach in addressing those requirements.

Table 1. Executive Summary of Long-Term Strategies

Clean Air Corridors <i>309(d)(3)</i>	Part C documents that emission growth inside and outside of the Clean Air Corridor is not shown to be contributing currently to impairment within the Clean Air Corridor.
Stationary Sources <i>309(d)(4), (f)(4) and (h)</i>	Part D includes proof of a 13% reduction in sulfur dioxide emissions between 1990 and 2000, the report on NO _x /PM strategies, geographic enhancement provisions, and other stationary source materials.
Sulfur Dioxide Milestones and Backstop Trading Program <i>309(d)(4) and (h)</i>	Part E includes milestones for sulfur dioxide emissions along with a backstop market cap and trade program for sulfur dioxide emissions from specific sources.
Mobile Sources <i>309(d)(5)</i>	Part F demonstrates that federal programs (such as low sulfur diesel, vehicle emission standards, etc.) lead to decreasing mobile source emissions throughout the planning period.
Programs Related to Fire <i>309(d)(6)</i>	Part G demonstrates that Utah has developed a smoke management regulation (R307-204) that implements the Western Regional Air Partnership (WRAP) <i>Enhanced Smoke Management Programs for Visibility Policy</i> .
Paved and Unpaved Road Dust <i>309(d)(7)</i>	Part H discusses the WRAP finding that dust emissions are not now a significant regional contributor to visibility impairment within the Colorado Plateau 16 Class I areas.
Pollution Prevention <i>309(d)(8)</i>	Part I describes programs and policies within Utah related to renewable energy and energy efficiency. Utah's anticipated contribution to the pollution prevention goals is outlined.
Additional Recommendations <i>309(d)(9)</i>	Part J summarizes that Utah has not identified any other recommendations in the Grand Canyon Visibility Transport Commission Report to implement in Utah at this time. A report on each recommendation is included in the Utah Technical Support Document Supplement.

Projection of Visibility Improvement <i>309(d)(2)</i>	Part K projects visibility improvement for the 20% best and worst days for each of the Class I areas on the Colorado Plateau (Arches, Bryce, Canyonlands, Capitol Reef, and Zion National Parks in Utah and the other 11 Class I areas in adjacent states that were addressed by the Grand Canyon Visibility Transport Commission)
Periodic Revisions <i>309(d)(10)</i>	Part L commits the State of Utah to submit periodic revisions to this SIP every five years.
State Planning and Interstate Coordination <i>309(d)(11)</i>	Part M describes Utah's participation in the Western Regional Air Partnership.
Reasonable Progress for Additional Class I Areas <i>309(g)</i>	Utah has no additional Class I areas.

Technical Support Documents

Accompanying this implementation plan and associated appendices are two other documents. The first is a Technical Support Document (TSD) developed by the Western Regional Air Partnership (WRAP) that contains the results of numerous collaborative studies by the WRAP members on which the State of Utah has relied. In the implementation plan, this is referred to as the “WRAP TSD.” The WRAP TSD also includes appendices. In addition, there are other supplemental materials that are state-specific technical support information. In the implementation plan, these are referred to as the “Utah TSD Supplement.”

B. BACKGROUND ON THE REGIONAL HAZE RULE

1. Introduction

Good visibility is important to fully enjoy the experience of visiting our national parks and wilderness areas. Visibility is impaired by light scattering and absorption caused by particulate matter and gases in the atmosphere that occur from both natural and human-caused activities. Visibility can be impaired by natural sources such as rain, wildland fires, volcanic activity, sea mists, and wind blown dust from undisturbed desert areas. Visibility also can be impaired by human-caused sources of air pollution such as industrial processes, (utilities, smelters, refineries, etc.), mobile sources (cars, trucks, trains, etc.) and area sources (residential wood burning, prescribed burning on wild and agricultural lands, wind blown dust from disturbed soils, etc.) These sources emit pollutants that, in higher concentrations, also can affect public health.

The State of Utah has implemented this section of the State Implementation Plan to address visibility protection in the mandatory Federal Class I areas (Class I areas) required under 40 CFR 51.309. It contains all measures necessary to address regional haze visibility impairment to ensure the State of Utah makes reasonable progress toward the national goal contained in 42 U.S.C. 7491.

2. Definitions

This Plan contains terms and phrases that have formal definitions under 40 CFR 51.301, 40 CFR 51.309(b), and other terms specific to the programs set forth in this Plan. These definitions are contained in Appendix A of this section and shall prevail over other interpretations as to the meaning and intent of this Plan.

3. 1977 Clean Air Act

In the 1977 Clean Air Act, Congress established requirements for the prevention of significant deterioration of air quality in areas within the United States and for the review of pollution controls on new sources.¹ Coupled with this, Congress established a visibility protection program for those larger national parks and wilderness areas designated as mandatory Federal Class I areas (Class I areas).² This program established a national goal of "...the prevention of any future, and remedying of any existing impairment of visibility in mandatory Federal class I areas, which impairment results from man-made air pollution" and requires states to develop long-term strategies to assure

¹ *Clean Air Act Amendments of 1977*, United States Congress. 42 U.S.C. 7470-7479. Government Printing Office: Washington, D.C. August 7, 1977.

² *Clean Air Act Amendments of 1977, Section 169A*, United States Congress. 42 U.S.C. 7491. Government Printing Office: Washington, D.C. August 7, 1977.

reasonable progress toward this national goal. The program also requires states to address any visibility impairment caused by emissions of air pollutants from certain large industrial sources if the source was less than 15 years old as of August 1977, through the establishment of emission limits based on best available retrofit technology (BART). Congress also established mandatory criteria for states to use when establishing BART emission limits and developing long-term strategies for reasonable progress toward meeting the national goal.

4. Reasonably Attributable Visibility Impairment SIP

In 1980, the United States Environmental Protection Agency (EPA) issued final regulations to address the requirements of the 1977 Clean Air Act, requiring states with Class I areas to submit State Implementation Plan (SIP) revisions with new source review plans, monitoring plans, BART implementation plans, and long-term strategies to address reasonable progress toward the national visibility goal.³ Utah's SIP for visibility protection was submitted to EPA on April 26, 1985, and approved on May 30, 1986.

In the mid-1980s, Governor Bangerter appointed a Task Force on Visibility Protection to determine the appropriate level of protection for Utah's Class I areas, and to determine the sources of impairment of visibility in those areas. The Task Force included representatives of industry, environmental groups, local governments, and citizens at large. The Task Force visited many sites within Utah's five Class I areas and heard presentations from technical experts in the science of visibility. After more than a year of investigation, the Task Force recommended that all Utah Class I areas need protection, and that the biggest cause of visibility impairment is not individual industrial sources, but rather the regional haze from a multitude of sources that is transported over long distances.

In 1985, the Interagency Monitoring of Protected Visual Environments (IMPROVE) program was established to coordinate the monitoring air quality in national parks and wilderness areas and to ensure sound and consistent scientific methods were being used.⁴ The IMPROVE Steering Committee established monitoring protocols for visibility measurement, particulate matter measurement, and scientific photography of the Class I areas. IMPROVE monitoring is designed to establish reference information on visibility conditions and trends to aid in the development of visibility protection programs. Monitoring from the IMPROVE network demonstrated that visibility in all the Class I areas is impaired to some degree by regional haze.

³ 40 CFR Part 51 - Protection of Visibility, United States Environmental Protection Agency, 45 FR 80089. Government Printing Office: Washington, D.C. December 2, 1980.

⁴ IMPROVE Home Page. <http://vista.cira.colostate.edu/improve> (accessed April 2003).

5. 1990 Clean Air Act

Although the 1980 regulations addressed reasonably attributable visibility impairment from specific sources, also known as plume blight, it did not adequately address visibility impairment from large collections of sources whose emissions are mixed and transported over long distances, creating a uniform haze (regional haze). In the 1990 amendments to the Clean Air Act, Congress established the requirements to address regional haze visibility impairment, giving the EPA authority to establish visibility transport commissions and promulgate regulations to address regional haze, and requiring the establishment of a visibility transport commission to investigate and report on regional haze visibility impairment in the Grand Canyon National Park located in northern Arizona.⁵

6. Grand Canyon Visibility Transport Commission

The Grand Canyon Visibility Transport Commission (GCVTC) was established by EPA in November of 1991, consisting of seven western governors (or their designees), and five ex-officio members representing federal land management agencies and EPA. When establishing the GCVTC, EPA designated a transport region including seven western states: California, Oregon, Nevada, Idaho, Utah, Arizona, Colorado, and New Mexico. Although part of the Transport Region, the State of Idaho declined the invitation to participate in the GCVTC. Utah's governor was vice-chair of the GCVTC. Although Congress required a commission to be established for the Grand Canyon National Park, the member states agreed to expand the scope of the GCVTC to address all 16 of the Class I areas on the Colorado Plateau. The GCVTC elected to use a stakeholder-driven process to accomplish its objectives. Ultimately, the organization included 200+ political, policy and technical stakeholders who staffed a variety of committees and subcommittees to perform policy analysis and technical studies, and to participate in the public debate. The GCVTC was funded by EPA grants and contributions from stakeholders, including substantial in-kind labor. During its four-and-one-half year development, the GCVTC was expanded to include the State of Wyoming and tribal leaders as members. The GCVTC appointed a Public Advisory Committee (PAC) representing broad stakeholder interests to provide input and feedback to the GCVTC. Many Utahns were members of the PAC, with two serving on the PAC Steering Committee, and one serving on the Executive Committee as Vice-Chair of the PAC. The 80+ member Public Advisory Committee developed a consensus report of recommendations for the GCVTC that was ultimately adopted by the GCVTC and submitted to EPA in June 1996.⁶

Recommendations of the GCVTC include the following:

⁵ *Clean Air Act Amendments of 1990, Section 169B*, United States Congress. 42 U.S.C. 7492. Government Printing Office: Washington, D.C. November 15, 1990.

⁶ Grand Canyon Visibility Transport Commission. *Recommendations for Improving Western Vistas*. Western Governors' Association: Denver, CO, June 10, 1996.

- Policies based on energy conservation, increased energy efficiency and promotion of the use of renewable resources for energy production;
- Careful tracking of emissions growth that may affect air quality in clean air corridors;
- Regional targets for sulfur dioxide emissions with a backstop program, probably including a regional cap and possibly a market-based trading program;
- Cooperatively developed strategies, expanded data collection and improved modeling for reducing or preventing visibility impairment in areas within and adjacent to Class I areas, pending further studies of sources adjacent to Class I areas;
- Emissions cap for mobile sources at the lowest level (expected to occur in 2005) and establishment of a regional emissions budget, as well as implementation of national strategies aimed at reducing tailpipe emissions;
- Further study to resolve issues regarding the modeled contribution to visibility impairment of dust from paved and unpaved roads;
- Continued bi-national cooperation to resolve data gaps and jurisdictional issues around emissions from Mexico;
- Programs to minimize emissions and visibility impacts and to educate the public about impacts from prescribed fire and wildfire, because emissions are projected to increase significantly through 2040; and
- Creation of an entity like the GCVTC to promote, support and oversee the implementation of many of the recommendations in this report.

EPA initially proposed regional haze regulations in 1997.⁷ The proposed regulations described a generic program to apply nationally and did not include provisions to address the recommendations of the GCVTC. The Western Governors' Association (WGA) engaged key stakeholders to develop a recommendation on how to transform the GCVTC recommendations into a Regional Haze Rule. WGA approved their recommendation and transmitted it to EPA in June 1998.⁸ Based on this and other public input, EPA issued the final Regional Haze Rule in July 1999 with a national program (§ 308) that could apply to any state or tribe and an optional program (§ 309) relying on the work of the GCVTC that is available to the states and tribes in the nine-state GCVTC transport region.⁹

7. Western Regional Air Partnership

The GCVTC recognized the need for a long-term organization to address the policy and technical studies needed to address regional haze. The Western Regional Air Partnership

⁷ 40 *CFR Part 51 - Regional Haze Regulations; Proposed Rule* - 62 *FR 41138*. United States Environmental Protection Agency, Government Printing Office: Washington, D.C. July 31, 1997.

⁸ Leavitt, M. O., Governor of Utah, Letter to EPA Administrator Browner on behalf of the Western Governors' Association, June 29, 1998.

⁹ 40 *CFR Part 51 - Regional Haze Rule; Final Rule*, 64 *FR 35714*. United States Environmental Protection Agency, Government Printing Office: Washington, D.C. July 1, 1999.

(WRAP) was formed in September 1997. The WRAP's charter allows it to address any air quality issue of interest to WRAP members, though most current work is focused on developing the policy and technical work products needed by states and tribes in writing their regional haze state implementation plans (SIPs) and tribal implementation plans (TIPs). The WRAP has been co-chaired by the governor of Utah and the governor of the Acoma Pueblo. The WRAP Board is currently composed of representatives from 13 states, 13 tribes, the U.S. Department of Agriculture, the U.S. Department of the Interior, and the Environmental Protection Agency. The WRAP operates on a consensus basis and receives financial support from EPA. The WRAP established stakeholder-based technical and policy oversight committees to assist in managing the development process of regional haze work products. Stakeholder-based working groups and forums were established to focus attention on the policy and technical work products the states and tribes need to develop their implementation plans.

The WRAP developed and submitted an Annex to the GCVTC recommendations to define a voluntary program of sulfur dioxide emission reduction milestones coupled with a backstop market-trading program to assure emission reductions. EPA proposed changes to the Regional Haze Rule to incorporate the GCVTC Annex, and the final rule was published on June 5, 2003.¹⁰ The WRAP is completing a suite of work products to support states and tribes developing GCVTC-based regional haze implementation plans. Additional information about the WRAP can be found on the WRAP web site at <http://www.wrapair.org>.

8. Mandatory Federal Class I Areas Addressed in 2003 SIP

The Regional Haze Rule under 40 CFR 51.309 requires states to address visibility protection for regional haze in the 16 Class I areas studied by the GCVTC in the initial regional haze SIP submitted by December 31, 2003. Other Class I areas are to be addressed after interstate consultation. These will be addressed in future SIP revisions as necessary.

Five of the 16 GCVTC Class I areas are in Utah, and Utah has no other Class I areas not covered under this initial SIP for regional haze. The Class I areas addressed are shown in Figure 1. The areas within the state of Utah are shown in Figure 2.

¹⁰ 40 CFR Part 51 - Regional Haze Regulations; Final Rule, 68 FR 33764, United States Environmental Protection Agency. Government Printing Office: Washington, D.C. June 5, 2003.

Figure 1. 16 GCVTC Class I Areas Addressed by 40 CFR 51.309

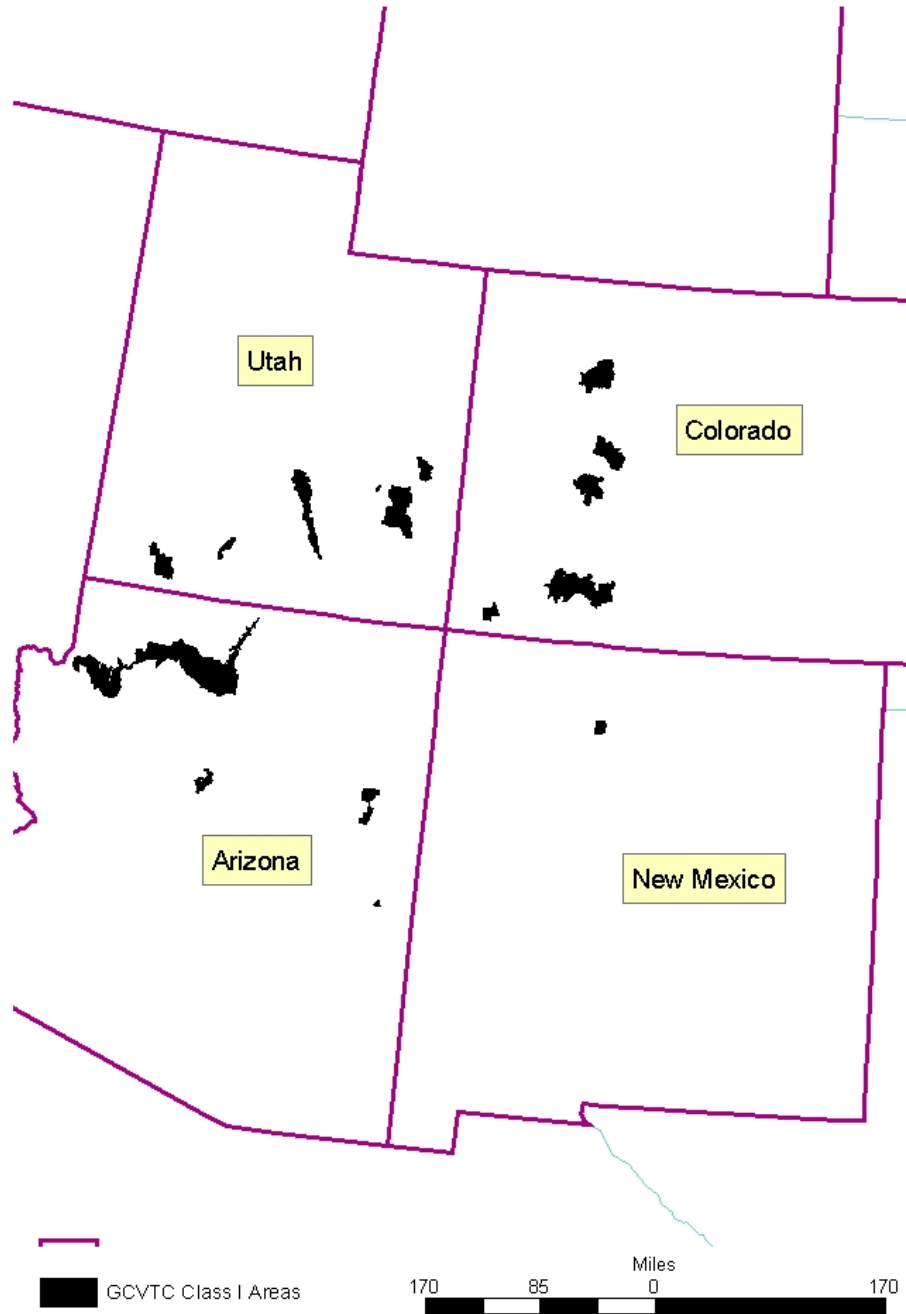


Figure 2. Utah Class I Areas Addressed by 40 CFR 51.309.

Five Class I Areas in the State of Utah



Utah Division of Air Quality August, 2003

C. LONG-TERM STRATEGY FOR THE CLEAN-AIR CORRIDOR

1. Regulatory History and Requirements

One of the required tasks of the Grand Canyon Visibility Transport Commission was to review whether clean-air corridors exist for the 16 GCVTC Class I areas. A clean-air corridor is a geographic region that contributes clean air to the Class I areas on the days with best visibility. If clean-air corridors were found to exist, the GCVTC was required to recommend whether additional control strategies were needed to manage emissions growth to protect visibility on the least impaired days in the Class I areas. For the purpose of assessment, the GCVTC considered the average of the days representing the 20% best visibility conditions to be the least impaired days. EPA also used this definition in defining the term in the Regional Haze Rule (40 CFR 51.308 and 51.309).

In 1995 the GCVTC Meteorology Subcommittee completed an analysis of the geographical source areas contributing to least impaired days in the 16 GCVTC Class I areas. The analysis, in a report entitled, *Clean-Air Corridors: A Framework for Identifying Regions that Influence Clean Air on the Colorado Plateau*,¹¹ showed that the area north and west of the Grand Canyon National Park does provide clean air to the Grand Canyon area primarily due to a combination of favorable meteorological conditions (rain washout and higher ventilating winds) and low emissions of pollutants from the sparsely populated area. The GCVTC Public Advisory Committee (PAC) reviewed the clean-air corridor analysis and emission projections and determined that, for the period through 2040, emissions growth is projected to be less than the amount that would degrade visibility on the least impaired days in the 16 Class I areas. Based on this finding, the PAC recommended emissions growth be monitored in the future but that no additional control strategies were needed in the clean-air corridor at that time. The GCVTC adopted this recommendation and included it in its final report to EPA, which was integrated into the Regional Haze Rule.¹²

The projections of visibility conducted by the WRAP and documented in Appendix C also indicate that visibility on the 20% best and worst days will improve through 2018.

The Regional Haze Rule requires states submitting implementation plans under 40 CFR 51.309 to determine if there are additional areas to be considered as clean-air corridors for emission tracking purposes in the GCVTC areas. The successor to the GCVTC, the Western Regional Air Partnership (WRAP), completed a technical analysis to validate the emissions growth projections in the clean air corridors. This analysis was included as

¹¹ Meteorology Subcommittee of the Grand Canyon Visibility Transport Commission. *Clean Air Corridors: Framework for Identifying Regions that Influence Clean Air on the Colorado Plateau*. Western Governors' Association: Denver, CO, July 1995.

¹² 64 FR 35751, July 1, 1999.

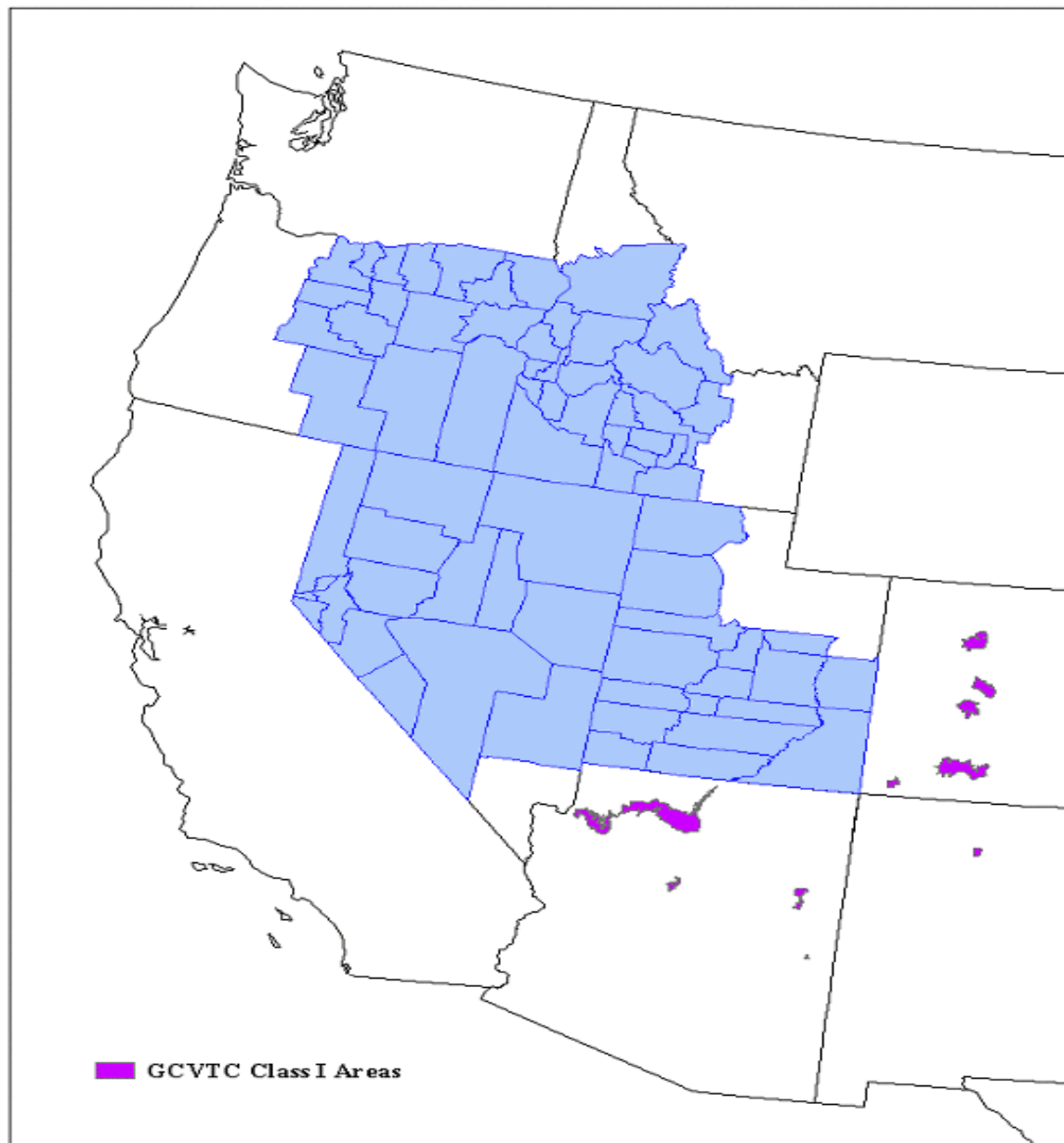
part of the WRAP consensus policy.¹³ A copy of this policy is contained in the Utah TSD Supplement. The WRAP policy defined a clean air corridor previously identified by the GCVTC Meteorology Subcommittee, and modified to recognize county level emission inventory practices and an emissions tracking requirement in the clean air corridor. The technical studies and findings supporting the WRAP Clean-Air Corridor Policy are located in Chapter 3 of the WRAP Technical Support Document.

2. Identification of the Clean-Air Corridor; Other Clean-Air Corridors

Pursuant to 40 CFR 51.309(d)(3)(i), the State of Utah concurs with the identification of an existing clean-air corridor as defined in the WRAP Clean-Air Corridor Policy. The boundary of the clean-air corridor is indicated on the map in Figure 3 provided below. This clean-air corridor was identified using studies conducted by the Meteorological Subcommittee of the GCVTC, and updated in the WRAP technical and policy analysis of the area described in the WRAP Clean-Air Corridor Policy. A large portion of Utah resides in the identified clean-air corridor.

¹³ *WRAP Policy on Clean Air Corridors*, adopted by Western Regional Air Partnership, November 13, 2002.

Figure 3. Map of the Clean Air Corridor in the Transport Region.



Source: Figure 1 from the WRAP Policy on Clean Air Corridors.

The State of Utah, pursuant to 40 CFR 51.309(d)(3)(v), has determined, based on the WRAP Clean-Air Corridor Policy and technical analysis, that no other clean-air corridors are identified at this time. The State of Utah commits to participating in a regional effort to review this determination as part of periodic plan revisions required under 40 CFR 51.309(d)(10).

3. Strategy for Clean Air Corridors

a. Comprehensive emissions tracking program.

Pursuant to 40 CFR 51.309(d)(3), the State of Utah commits to monitoring changes in emissions inside and outside the clean-air corridor with an emissions tracking program developed by the WRAP to ensure that visibility does not degrade on the least impaired days in any of the 16 GCVTC Class I areas. The State of Utah commits to providing statewide annual emission inventory data for use in the WRAP emissions tracking program. The state of Utah is working with the WRAP to develop a comprehensive emissions tracking system.¹⁴ Utah, working with the WRAP, will summarize emission trends in order to identify any significant emissions growth that could lead to visibility degradation in the 16 Class I areas. Included in this summary will be an assessment of whether any significant emissions growth has occurred within or outside the clean-air corridor, in accordance with paragraphs C.3.b and c below. The State of Utah will work cooperatively with states not submitting a plan under 40 CFR 51.309 that have emissions within or outside the clean-air corridor that could affect air quality in the clean-air corridor, to ensure the emissions are incorporated into the tracking program through interstate consultation.

b. Patterns of growth within the clean-air corridor.

Pursuant to 40 CFR 51.309(d)(3)(ii), the State of Utah has determined, based on the WRAP Clean-Air Corridor Policy and WRAP technical analysis, that current projections of emissions changes inside the identified clean-air corridor will not contribute to degradation of visibility on the least impaired days in the 16 Class I areas during the planning period through 2018. Future emissions growth will be tracked in accordance with the comprehensive emissions tracking system noted in paragraph C.3.a above. The WRAP will summarize annual emission trends within the clean-air corridor and assess whether any significant emission growth has occurred within the corridor as an analysis tool for states.

c. Patterns of growth outside the clean-air corridor.

Pursuant to 40 CFR 309(d)(3)(iii), the State of Utah has determined, based on the WRAP Clean-Air Corridor Policy and technical analysis, that current projections of emission changes in areas outside the identified clean-air corridor will not contribute to degradation of visibility on the least impaired days in the 16 Class I areas during the planning period through 2018. The State of Utah will ensure that WRAP will track

¹⁴ EA Engineering, Science and Technology, Inc, for the WRAP Emissions Forum. *Emissions Forum Data Reporting, Management, and Tracking System: Draft Final Report: Needs Assessment for Evaluation and Design of an Emissions Data Reporting, Management, and Tracking System*. July, 2003. From the WRAP Web site on August 20, 2003.

emissions in areas outside the clean-air corridor and report to the State of Utah on any significant changes in emission projections that may require a reassessment of this determination in future SIP revisions, as required in 40 CFR 51.309(d)(10).

d. Actions if impairment inside or outside the clean-air corridor occurs.

The State of Utah, in coordination with other transport region states and tribes, will review the WRAP's annual summary of emission trends inside and outside the clean-air corridor and determine if significant emissions growth as identified within the corridor in accordance with paragraph C.3.b above, or was identified outside the corridor, in accordance with paragraph C.3.c above. If significant emissions growth is identified, the State of Utah, in coordination with other transport region states and tribes, will conduct, or seek WRAP assistance in conducting, an analysis of the emissions growth on visual air quality impacts on the least impaired days in any of the 16 Class I areas of the Colorado Plateau. Pursuant to 40 CFR 51.309(d)(3)(iv), if this analysis finds that this growth is causing visibility impairment in the 16 Class I areas, the State of Utah, in coordination with other transport region states and tribes, will evaluate the need for additional emission reduction measures and identify an implementation schedule for such measures, if needed. The implementation of any additional emission measures shall be coordinated with all appropriate transport region state and tribes, on a mutually agreed upon timetable, and reported to EPA in accordance with the periodic progress reports required under 40 CFR 51.309(d)(10)(i). If the WRAP regional planning process is unable to perform such an analysis for the Class I areas in Utah, or come to a consensus on the interpretation of such an analysis, the State of Utah will perform such studies and engage in independent interstate consultation provided for under 40 CFR 51.309(d)(11).

D. LONG-TERM STRATEGY FOR STATIONARY SOURCES

1. Regulatory History and Requirements

The Grand Canyon Visibility Transport Commission (GCVTC) studied the long-term projected changes of emissions from stationary sources. It was found that emissions of sulfur dioxide from stationary sources would decline by at least 13% between 1990 and 2000. Also, emissions of sulfur dioxide would continue to decline through 2040 when only 30% to 50% of the 1990 emission levels would remain. This decline was due to the normal turnover of source technology as older sources retire and are replaced by newer and cleaner technologies.

The GCVTC decided that the most appropriate way to address emissions of sulfur dioxide from stationary sources was to establish regional emission milestones and allow voluntary measures to achieve the emission reductions. If the emission milestones are not achieved, then a backstop market trading program would be implemented to guarantee the emission reductions are achieved. The GCVTC did not have sufficient time to develop the details of the emission milestones or backstop program, but committed to develop it and submit it to EPA.

In the Regional Haze Rule, EPA required the states to complete the development of the stationary source program for sulfur dioxide and to submit it as an Annex to the GCVTC recommendations. The WRAP submitted the Annex in September, 2000.¹⁵ On June 5, 2003, EPA issued the final rules related to the sulfur dioxide program for stationary sources.¹⁶ These rules incorporated the materials in the Annex.

2. Achievement of a 13% or Greater Reduction of Sulfur Dioxide Emissions by 2000

One item that must be included in the first implementation plan is monitoring and reporting of stationary source sulfur dioxide (SO₂) emissions. This monitoring and reporting data must be sufficient to determine whether a 13% reduction in actual stationary source SO₂ emissions has occurred between the years 1990 and 2000, and whether milestones required by Section 51.309(d)(4)(ii) have been achieved for the transport region. As shown in Table 2 taken from the Pechan report, regional SO₂ emission totals show that there was a 25% reduction in these emissions from 1990 to

¹⁵ Western Regional Air Partnership. *Voluntary Emissions Reduction Program for Major Industrial Sources of Sulfur Dioxide in Nine Western States and a Backstop Market Trading Program, An Annex to the Report of the Grand Canyon Visibility Transport Commission*. Denver, CO. September 29, 2000.

¹⁶ 68 FR 33764.

2000.¹⁷ Details of the source of emission inventories used for this calculation are in the Pechan report.

Table 2. State-by-State Comparison of 1990 and 2000 Stationary Source Sulfur Dioxide Emissions in the 9 GCVTC Transport Region States (tons per year)

States	1990	2000
Arizona	185,398	99,133
California	52,832	38,501
Colorado	95,534	99,161
Idaho	24,652	27,763
Nevada	52,775	53,943
New Mexico	177,994	117,344
Oregon	17,705	23,362
Utah	85,567	38,521
Wyoming	136,318	124,110
Totals	828,775	621,838

3. Strategy for Stationary Sources of Sulfur Dioxide

The long-term strategy for stationary sources implements the Grand Canyon Visibility Transport Commission (GCVTC) recommendation to develop regional sulfur dioxide (SO₂) milestones and a backstop trading program to ensure that the milestone goals are achieved. The GCVTC recommendations were further refined in an Annex to the Commission report that was submitted to EPA in September 2000. The Annex was incorporated into the federal Regional Haze Rule under 40 CFR § 51.309(h) on June 5, 2003.¹⁸

The long-term strategy for stationary sources is implemented through the following documents:

- Sulfur Dioxide Milestones and Backstop Trading Program, Part E of this plan, describes the overall program and contains Utah's commitment to implement all parts of the program as outlined in the plan. The plan establishes the regional SO₂ milestones, emissions tracking requirements, and, if the Western Backstop SO₂ Trading Program (WEB Trading Program) is triggered, the plan also describes how Utah will determine allocations and manage the allowance tracking system that is needed to implement the program.

¹⁷ E.H. Pechan & Associates, Inc. for the Western Governors' Association. *Year 2000 Point Source SO₂ Emissions Analysis - 9 State Western Region Report*. Denver, CO, May 2002.

¹⁸ 68 FR 33764.

- R307-250, Western Backstop Sulfur Dioxide Trading Program, contains the requirements that will apply to major industrial sources of sulfur dioxide as a backstop regulatory program if the SO₂ milestones are exceeded. The rule may never be implemented if the goal to meet the regional SO₂ milestones through voluntary means is achieved. If the rule is implemented, it establishes the procedures and compliance requirements for sources in the trading program.
- R307-150 requires major industrial sources of SO₂ to submit an annual emissions inventory in the pre-trigger phase of the program to measure compliance with the regional SO₂ milestones. If the backstop program is triggered, then these requirements will eventually be replaced by more rigorous monitoring requirements in R307-250.

a. 2018 Milestone

The 2018 milestone of 510,000 tons, including a 30,000 ton set-aside for two copper smelters not currently operating (or 480,000 tons if the suspended smelters do not resume operation), represents a regional emission reduction of approximately 320,000 tons of SO₂ from the 1990 baseline emissions of 830,000 tons, and is well on the way to the GCVTC's goal of a 50-70% reduction by 2040. The Annex demonstrated that the 2018 regional sulfur dioxide milestone provides for greater reasonable progress than would be achieved by application of best available retrofit technology (BART), as required by 40 CFR 51.309(f)(1)(i). The WRAP estimated that BART reductions would total approximately 170,000 tons by 2018.

In modeling work conducted by the WRAP to verify the Annex analysis, it was determined that, in addition to the 16 Class I areas of the Colorado Plateau, the regional SO₂ milestones showed greater reasonable progress than would be achieved under BART for Utah's Class I areas and for any Class I areas affected by emissions from Utah. This demonstration can be found in Section 4.1.2 of the WRAP Technical Support Document. In accordance with 40 CFR 51.309(g)(ii), no further demonstration will be needed prior to 2018 for Utah's stationary sources identified in the Annex, in terms of satisfying BART for SO₂ under 40 CFR 51.308(e).

b. Interim Milestones

After considerable investigation, the WRAP Market Trading Forum determined that 1999 SO₂ emissions, including expected emissions of 38,000 tons from the two smelters not currently operating, were about 690,000 tons. Interim milestones are intended to meet the GCVTC's recommendation for steady and continuing reductions, while giving the regulated community operating flexibility in the early years and time to integrate planning for regional haze reductions with other factors such as electricity deregulation. Milestones step down every fifth year. The proposed interim milestones with the suspended smelters in and out respectively are 720,000/682,000 tons in 2003; 715,000/677,000 tons in 2008; and 655,000/625,000 tons in 2013.

c. Triggering the Trading Program

States and tribes will collect an annual SO₂ inventory. Compliance with the milestones is determined by an annual comparison of the rolling 3-year average of total regional emissions with the rolling 3-year average of the milestones. For 2018, total emissions will be compared with the 2018 milestone. If a milestone is exceeded, the trading program is activated and emission allocations are made one year later with sources having five years from the year of exceedance to comply with their allocation. Sources may comply by retrofitting to bring emissions below their allocation, by buying credits to emit from other sources, by retiring the source, or by other means.

d. Certainty that 2018 Milestone Will Be Met on Time

With such a large proportion of the reductions scheduled to occur in the last five years of the program, it is important to ensure that all the reductions occur on time. Therefore, Part E of this Plan includes a mechanism for the states and tribes to activate the trading program in 2013 if available evidence indicates the 2018 milestone will not be reached. In order to be in compliance with the 2018 milestone, the 2018 emissions must be less than the 2018 milestone. Sources that have not controlled their emissions in accordance with their allocations will be subject to financial penalties and a 2:1 offset of future emissions allocations for each ton of excess emissions.

e. Trading Program Features

Details of the backstop trading program such as applicability, monitoring and reporting, trading procedures, compliance requirements and penalties, are defined in R307-250. Sources that reduce their emissions below their allocation will be able to sell excess allowances to other sources, within certain programmatic restrictions.

f. Allocations

If the program is triggered, 20,000 tons of SO₂ allocations will be set aside for tribal interests, acknowledging that tribal lands are largely undeveloped and that tribes would not benefit from a plan based only on past emissions. There will be a new source set-aside to accommodate growth within the region. Existing sources will receive a "floor" allocation based on a "clean unit" emission rate. Certain renewable energy sources also will be eligible to receive an allocation. The remainder of the allowances, which will decline over the years, will be allocated to existing sources. If the program is triggered, sources may buy and sell allowances to come into compliance.

g. State and Tribal Opt-In or Opt-Out

In the event that states or tribes with existing sources in the region choose to develop regional haze plans under 40 CFR §51.308, proportional adjustments will be made to the milestones and the program components will be altered accordingly.

4. Geographic Enhancement Program

The requirements for geographic enhancement are discussed on page 35757 in the Preamble to the regional haze rule. These requirements are related to 40 CFR 51.309(f)(1) that describes requirements for the Annex. The Annex allows states to submit a SIP, or tribes a TIP, which adopts an alternative measure to regional haze BART. Geographic enhancement is a voluntary approach that can be included in the Annex for addressing reasonably attributable visibility impairment (RAVI) for stationary sources, under the provisions of 40 CFR 51.302(c). RAVI is different from regional haze in that it addresses “hot spots” or situations where visibility impairment in a Class I area is reasonably attributable to a single source or small group of sources in relatively close proximity to the Class I area. A Model Memorandum of Agreement (MOA) between federal land managers and states to address the RAVI certification process is included in the Utah TSD Supplement for this Plan. The model MOA was drafted to provide sources greater certainty regarding their potential risk of being certified as a RAVI source by a Federal Land Manager. Sources can incorporate this information into their business planning process, and use the efficiencies and reduced costs of the market to address potential RAVI issues.

a. Procedure for addressing Reasonably Attributable Visibility Impairment under the Regional Haze Rule.

If the National Park Service certifies impairment, the State of Utah will fulfill its obligations to determine attribution and if necessary determine BART for the applicable source or group of sources in accordance with Utah's SIP for visibility protection submitted to EPA on April 26, 1985, and approved on May 30, 1986. Additional information regarding possible technical approaches for determining attribution is contained in the WESTAR report, *Recommendations for Making Attribution Determinations in the Context of Reasonably Attributable BART*.

5. Report on Assessment of NO_x/PM Strategies

a. Assessment of Need for NO_x and PM milestones.

Pursuant to 40 CFR 51.309(d)(4)(v), the State of Utah has evaluated the need for NO_x and PM emission control strategies, the degree of visibility improvement expected, and whether such milestones are needed to avoid any net increase in these pollutants. This evaluation was based on an assessment of NO_x and PM stationary source emissions made by the WRAP Market Trading Forum for all WRAP states, including the transport region states.¹⁹

¹⁹ WRAP. *Stationary Source NO_x and PM Emissions in the WRAP Region: An Initial Assessment of Emissions, Controls, and Air Quality Impacts*. Denver, CO. Presented to the WRAP Board October 15, 2003.

Several conclusions were reached based on current analyses.

- For the vast majority of Class I areas throughout the WRAP region, stationary source NO_x and PM emissions are not a major contributor to visibility impairment on the average 20% best and 20% worst days. However, on some of the worst days nitrates and PM are the main components of visibility impairment.
- Stationary source NO_x emissions are projected to increase by 4% between 1996 and 2018. Stationary source NO_x emissions probably cause 2% - 5% of the visibility impairment on the Colorado Plateau.
- Stationary source PM emissions are projected to increase by 29% between 1996 and 2018. Stationary source PM emissions probably cause less than 2% of the regional visibility impairment.
- The current regional modeling does a poor job of predicting nitrate concentrations in the winter when NO_x has the greatest impact on visibility impairment. The modeling also does a poor job of predicting the impact of localized fugitive dust impact. The WRAP is currently making significant improvements to the model and to the emission inventories to address these issues.
- There is a wide range of emission reduction techniques available to control NO_x and PM emissions, and many of the technologies are cost-effective. The current emission inventory does not contain enough information to determine what technologies are currently in place in the West and the cost of additional controls.
- RAVI remedies are available in cases where particular stationary sources may impact particular Class I areas.

The complete report is provided in the Utah TSD Supplement. The State of Utah is not able to determine the need for NO_x and PM emission reduction strategies or the need for NO_x or PM milestones at this time. The State of Utah will continue to work with the WRAP to improve the emission inventories and regional modeling to support future policy decisions regarding stationary source NO_x and PM emissions.

The State of Utah will submit an implementation plan revision by December 31, 2008, to incorporate any necessary long-term strategies and BART requirements for stationary source PM and NO_x (including enforceable limitations, compliance schedules, and other measures) as required under 40 CFR 51.309(d)(4)(v).

E. SULFUR DIOXIDE MILESTONES AND BACKSTOP TRADING PROGRAM

1. Milestones and Determination of Program Trigger

a. Regional Sulfur Dioxide Milestones

(1) *Base Milestone Values.*

The regional sulfur dioxide (SO₂) base milestones for the years 2003 through 2018 are provided in Table 3. The base milestones will be adjusted annually as described in paragraphs E.1.a(2) and (3) of this plan.

Table 3. Base Sulfur Dioxide Emissions Milestones (excludes Smelter Set-aside)

Column 1	Column 2	Column 3
For the year	the base regional sulfur dioxide milestone is	and the annual SO ₂ emissions for these years will determine whether emissions are greater than or less than the milestone
2003	682,000 tons SO ₂	2003
2004	682,000 tons SO ₂	Average of 2003 and 2004
2005	682,000 tons SO ₂	Average of 2003, 2004 and 2005
2006	682,000 tons SO ₂	Average of 2004, 2005 and 2006
2007	682,000 tons SO ₂	Average of 2005, 2006 and 2007
2008	680,333 tons SO ₂	Average of 2006, 2007 and 2008
2009	678,667 tons SO ₂	Average of 2007, 2008 and 2009
2010	677,000 tons SO ₂	Average of 2008, 2009 and 2010
2011	677,000 tons SO ₂	Average of 2009, 2010 and 2011
2012	677,000 tons SO ₂	Average of 2010, 2011 and 2012
2013	659,667 tons SO ₂	Average of 2011, 2012 and 2013
2014	642,333 tons SO ₂	Average of 2012, 2013 and 2014
2015	625,000 tons SO ₂	Average of 2013, 2014 and 2015
2016	625,000 tons SO ₂	Average of 2014, 2015 and 2016
2017	625,000 tons SO ₂	Average of 2015, 2016 and 2017
2018	480,000 tons SO ₂	Year 2018 only
2019 forward, until replaced by an approved SIP	480,000 tons SO ₂	Annual; no multiyear averaging

(2) *Adjustments for participation by eligible States and Tribes.*

The amount provided in Table 4 below will be subtracted from the base milestone in Table 3 for each state and tribe that does not have an Implementation Plan approved by the EPA Administrator as meeting the requirements of 40 CFR 51.309 as of December 31 of the year following the milestone year. The first adjustment to the 2003 milestone will

be made no later than March 31, 2005, and will be based on all states and tribes that do not have a federally-approved Implementation Plan as of December 31, 2004.

Table 4. (Years 2003-2018) Amounts of SO₂ Tons To Be Subtracted from the Base Milestones for States and Tribes That Do Not Have an Approved Implementation Plan under 40 CFR 51.309*

State or Tribe	2003	2004	2005	2006	2007	2008	2009	2010
1. Arizona	117,372	117,372	117,372	117,372	117,372	117,941	118,511	119,080
2. California	37,343	37,343	37,343	37,343	37,343	36,363	35,382	34,402
3. Colorado	98,897	98,897	98,897	98,897	98,897	98,443	97,991	97,537
4. Idaho	18,016	18,016	18,016	18,016	18,016	17,482	16,948	16,414
5. Nevada	20,187	20,187	20,187	20,187	20,187	20,282	20,379	20,474
6. New Mexico	84,624	84,624	84,624	84,624	84,624	84,143	83,663	83,182
7. Oregon	26,268	26,268	26,268	26,268	26,268	26,284	26,300	26,316
8. Utah	42,782	42,782	42,782	42,782	42,782	42,795	42,806	42,819
9. Wyoming	155,858	155,858	155,858	155,858	155,858	155,851	155,843	155,836
10. Navajo Nation	53,147	53,147	53,147	53,147	53,147	53,240	53,334	53,427
11. Shoshone-Bannock Tribe of the Fort Hall Reservation	4,994	4,994	4,994	4,994	4,994	4,994	4,994	4,994
12. Ute Indian Tribe of the Uintah and Ouray Reservation	1,135	1,135	1,135	1,135	1,135	1,135	1,135	1,135
13. Wind River Reservation	1,384	1,384	1,384	1,384	1,384	1,384	1,384	1,384
State or Tribe	2011	2012	2013	2014	2015	2016	2017	2018
1. Arizona	119,080	119,080	116,053	113,025	109,998	109,998	109,998	82,302
2. California	34,402	34,402	33,265	32,128	30,991	30,991	30,991	27,491
3. Colorado	97,537	97,537	94,456	91,375	88,294	88,294	88,294	57,675
4. Idaho	16,414	16,414	15,805	15,197	14,588	14,588	14,588	13,227
5. Nevada	20,474	20,474	20,466	20,457	20,449	20,449	20,449	20,232
6. New Mexico	83,182	83,182	81,682	80,182	78,682	78,682	78,682	70,000
7. Oregon	26,316	26,316	24,796	23,277	21,757	21,757	21,757	8,281
8. Utah	42,819	42,819	41,692	40,563	39,436	39,436	39,436	30,746
9. Wyoming	155,836	155,836	151,232	146,629	142,025	142,025	142,025	97,758
10. Navajo Nation	53,427	53,427	52,707	51,986	51,266	51,266	51,266	44,772
11. Shoshone-Bannock Tribe of the Fort Hall Reservation	4,994	4,994	4,994	4,994	4,994	4,994	4,994	4,994
12. Ute Indian Tribe of the Uintah and Ouray Reservation	1,135	1,135	1,135	1,135	1,135	1,135	1,135	1,135
13. Wind River Reservation	1,384	1,384	1,384	1,384	1,384	1,384	1,384	1,384

*These numbers differ from Annex opt-in/-out tables in that the smelter set-aside is excluded and the new source set-aside is included.

(3) *Adjustment for Future Operation of Copper Smelters in Arizona and New Mexico.*

If either the BHP San Manuel smelter in Arizona or the Phelps Dodge Hidalgo smelter in New Mexico resumes operation, the milestones will be increased as described below. The adjustment will occur only if the respective state has a State Implementation Plan approved by the EPA Administrator under 40 CFR 51.309. Once the adjustments have been made, the milestones will not be changed due to future suspensions or changes in plant operations, except as provided below. If Arizona or New Mexico elect not to submit a SIP under 40 CFR 51.309, the emissions for the smelters in the state without a SIP under Section 309 will be subtracted from the smelter set-aside.

(a) If one or both smelters resume operations under their existing permits, the milestone will be adjusted upward for each smelter respectively by the following amounts:

1. Phelps Dodge Corporation, Hidalgo Smelter: 22,000 tons SO₂
2. BHP, San Manuel Smelter: 16,000 tons SO₂
3. For the 2013 through 2018 milestones, the maximum increase will be 30,000 tons SO₂.

(b) If Arizona or New Mexico determines that either smelter will resume operation by operating only a portion of the plant, the milestone adjustment in (a) will be reduced by a percentage to reflect current conditions. If the smelter resumes normal operations at a later date, the full adjustment described in (a) will be applied.

(c) If one or both smelters resume operations after going through new source review, the milestone adjustment will be based on the new permitted level for the source, but in no instance may the adjustment to the milestones exceed 22,000 tons SO₂ per year for the Hidalgo Smelter or 16,000 tons SO₂ per year for the San Manuel Smelter.

(d) If one or both smelters do not resume operation, the executive secretary will determine, based on the calculation procedures in XX.E.1.c(4) of this Plan, the amount of source-specific set aside that will be added to the milestone to account for capacity expansion at the remaining smelters. This set-aside will only be available for use if sulfur input and emissions from an individual copper smelter is above the baseline level listed in Table 5 in any particular year as a result of increased capacity. The increase to the milestone will be based on a smelter's proportional increase above its baseline sulfur input. The set-aside will be recalculated every year to reflect actual operations of the remaining copper smelters. The set-aside may not be traded under the backstop trading program.

Table 5. Preliminary Smelter-Specific Set Aside

Company/Smelter	Baseline Sulfur Input	Baseline Allocation	Smelter-specific Set-aside
BHP San Manuel	417,200 tons	16,000 tons SO ₂	1,500 tons SO ₂
Asarco Hayden	235,000 tons	23,000 tons SO ₂	3,000 tons SO ₂
Phelps Dodge Chino	212,800 tons	16,000 tons SO ₂	3,000 tons SO ₂
Phelps Dodge Hidalgo	256,800 tons	22,000 tons SO ₂	4,000 tons SO ₂
Phelps Dodge Miami	208,700 tons	8,000 tons SO ₂	2,000 tons SO ₂
Kennecott Utah Copper Corporation, Smelter and Refinery	340,269 tons	1,000 tons SO ₂	100 tons SO ₂
TOTAL	1,670,769 tons	86,000 tons SO₂	13,600 tons SO₂

(4) Other Milestone Adjustments.

(a) All other milestone adjustments will require a SIP revision. Paragraph E.1.c(3) of this plan outlines adjustments to be made to the emissions inventory to ensure a consistent comparison to the milestones. These adjustments will be incorporated into the milestones every five years as part of the periodic implementation plan revisions required by 40 CFR 51.309(d)(10). Adjustments to the milestones will be tracked in the annual emissions report described in paragraph E.1.c(4) of this Plan.

(b) Within ninety days of adoption by the Utah Air Quality Board of the periodic Implementation Plan revision incorporating adjustments based on paragraph E.1.c(3) or (4) of this Plan, the State of Utah will provide notice to sources whose records were used to calculate the adjustments, including the date of the SIP adoption and a statement that the source needs to retain the applicable records for at least five years from the date that the SIP was adopted, or ten years from the date of establishing the record, whichever is longer.

b. Regional Program Administration

(1) Pre-trigger tracking of regional SO₂ emissions.

The executive secretary will work cooperatively with the states and tribes that are participating in the SO₂ Milestones and Backstop Trading Program to ensure that an emission tracking system for the regional SO₂ inventory is developed and maintained. The executive secretary is responsible for all regional program administration functions as described in this plan. The executive secretary will perform these functions using the WRAP as the executive secretary's agent. The Western Regional Air Partnership (WRAP) compiled the SO₂ emission inventories that were used during the development of the Annex, and the WRAP continues to refine and improve the overall tracking system for regional haze. The WRAP will maintain the pre-trigger emissions tracking functions described in this plan for the foreseeable future. If the WRAP is no longer able to fulfill

this function, then the executive secretary will ensure that other arrangements are made, either through a different regional organization or through a contractor, to maintain the SO₂ tracking system that is described in this plan. The WRAP has no authority to make regulatory determinations. The WRAP has limited authority under this plan to perform tracking and accounting functions, prepare reports, and perform other administrative functions as directed by the executive secretary. The executive secretary will work expeditiously to correct any problems if the WRAP fails to perform any of the functions described in this plan in a timely manner.

(2) Designation of the Tracking System Administrator.

If the backstop trading program is triggered due to an exceedance of the SO₂ milestones as outlined in Part E.1.c of this plan, the executive secretary will work cooperatively with the other participating states and tribes to designate one Tracking System Administrator (TSA). The TSA will be designated as expeditiously as possible, but no later than six months after the program trigger date. In addition, before the TSA is designated, the executive secretary will enter into a binding contract with the TSA that will require the TSA to perform all TSA functions described in this plan. The State of Utah has sufficient authority under State contract law to ensure that the functions in this plan are carried out by the TSA.

(3) Information Provided by other States and Tribes.

The executive secretary will accept the emission inventory and permitting information provided by the other participating states and tribes in order to determine the milestone value and program trigger if such other states and tribes have provided proper documentation and followed the public notification process in their federally approved implementation plans.

c. Determination of Program Trigger

(1) The executive secretary will submit an annual emissions report to the WRAP and all participating states and tribes by September 30 of each year. The report will document actual sulfur dioxide emissions during the previous calendar year for all sources subject to the Sulfur Dioxide Milestone Inventory requirements of R307-150. The first report for calendar year 2003 will be submitted by September 30, 2004. If the WEB Trading Program is triggered as outlined in paragraph E.1.c(10) of this plan, annual reports will be prepared during the interim period for informational purposes until the trading program is fully implemented. The executive secretary will prepare the supporting documentation that is included with the annual emissions report as noted in (2) and (3) below.

(2) The annual emissions report for Utah will include a source emissions change report that contains the following information:

(a) identification of any new sources that were not contained in the previous calendar year's emissions report, and an explanation of why the source is now included in the program;

- (b) identification of any sources that were included in the previous year's report and are no longer included in the program, and an explanation of why this change has occurred; and
 - (c) an explanation for increases or decreases of emissions at any applicable source of more than twenty percent from the previous year.
- (3) The annual emissions report for Utah will include the proposed emissions adjustment as described in (a) through (c) to ensure a consistent comparison to the milestones.

(a) Changes in flow rate measurement methods. Actual emission inventories for utilities that use EPA's Reference Method 2F, 2G, or 2H to measure stack flow rate will be adjusted to be comparable with the flow rate assumptions that were used in 1999, the base year inventory for the Annex. The adjustment may be calculated using any of the following three methods, and emissions for the year 2018 will not be adjusted.

- (i) Directly determine the difference in flow rate through a side-by-side comparison of data collected with the new and old flow reference methods during a relative accuracy test audit (RATA) test.

- (ii) Compare the annual average heat rate using Acid Rain heat input data (MMBtu) and total generation (MWHrs) as reported to the federal Energy Information Administration. Under this approach, the flow adjustment factor will be calculated using the following ratio:

$$\frac{\text{Heat input/MW for first full year of data using new flow rate method}}{\text{Heat input/MW for last full year of data using old flow rate method.}}$$

- (iii) Compare the standard CFM per MW before and after the new flow reference method based on CEMs data submitted in the Acid Rain Program, as follows:

$$\frac{\text{SCF/Unit of Generation for first full year of data using new flow rate method}}{\text{SCF/Unit of Generation for last full year of data using old flow rate method.}}$$

(b) Changes in emission monitoring or calculation methods. Actual emission inventories for sources that change the method of monitoring or calculating their emissions will be adjusted to be comparable to the emission monitoring or calculation method that was used in the base year inventory for the Annex (1999 for utilities and 1998 for all other sources).

- (4) The annual sulfur dioxide milestone and emissions report for Utah will document any adjustments that should be made to the milestone for the previous year as follows.

(a) The executive secretary will document the submittal date of this Implementation Plan to implement the regional Sulfur Dioxide Milestones and Backstop Trading Program, and the approval date by the EPA Administrator, if applicable.

(b) Kennecott Utah Copper (KUC) may submit sulfur input data and SO₂ emissions data to the executive secretary to demonstrate that KUC qualifies for the smelter specific set-aside described in Part E.1.a(3)(d) of this Plan. If actual emissions and sulfur input are greater than the baseline level in Table 5, and either the BHP San Manuel smelter in Arizona or the Phelps Dodge smelter in New Mexico have not resumed operation, the executive secretary will determine the milestone adjustment for KUC by determining the increase in the milestone based on the proportional increase in sulfur input over baseline levels. For each smelter, the adjustment will not exceed the smelter-specific set-aside listed in Table 5.

(c) Changes due to enforcement actions.

(i) Adjustments due to settlements arising from enforcement actions. Adjustments to the milestones will be made, as specified in subsection (iii) below, if:

(A) an agreement to settle an action, arising from allegations of a failure of an owner or operator of an emissions unit at a source in the program to comply with applicable regulations which were in effect during the base year, is reached between the parties to the action;

(B) the alleged failure to comply with applicable regulations affects the assumptions that were used in calculating the source's base year and forecasted sulfur dioxide emissions; and

(C) the settlement includes or recommends an adjustment to the milestones.

(ii) Adjustments due to administrative or judicial orders. Adjustments to the milestones will be made as directed by any final administrative or judicial order, as specified in (iii) below. Where the final administrative or judicial order does not include a reforecast of the source's baseline, the executive secretary will evaluate whether a reforecast of the source's baseline emissions is appropriate.

(iii) Adjustments method and effective dates. The milestone will be decreased by an appropriate amount based on a reforecast of the source's decreased sulfur dioxide emissions. The adjustments will not be made to the milestone until after the source has reduced its sulfur dioxide

emissions as required in the settlement agreement, or administrative or judicial order.

(iv) Documentation of adjustments for enforcement actions. The report will include the following documentation of any adjustment due to an enforcement action or a settlement agreement:

(A) identification of each source in Utah that has reduced sulfur dioxide emissions pursuant to a settlement agreement or an administrative or judicial order;

(B) for each source identified, a statement indicating whether the milestones were adjusted in response to the enforcement action;

(C) discussion of the rationale for the executive secretary's decision to adjust or not to adjust the milestones; and

(D) if SO₂ emissions reductions over and above those reductions needed for compliance with the applicable regulations were part of an agreement to settle an action, a statement indicating whether such reductions resulted in any adjustment to the milestones or allowance allocations, and a discussion of the rationale for the executive secretary's decision on any such adjustment.

(v) The State of Utah will include all accumulated milestone adjustments due to enforcement actions or settlement agreements in the periodic SIP revisions required under 40 CFR 51.309(d)(10).

(5) Compilation of Reports.

(a) The WRAP will compile the annual emissions reports submitted by all participating states and tribes into a draft regional emission report for sulfur dioxide. The WRAP will follow additional quality assurance procedures developed by member states and tribes to identify possible errors in the emissions data, including screening for missing or added sources, name changes, and significant changes in reported emissions. Any questions or anomalies regarding Utah's report will be resolved by the executive secretary prior to the submission of the draft regional emission report.

(b) By December 31 of each year, the WRAP will submit the draft regional emission and milestone report to the executive secretary and all participating states and tribes and will post the report on the WRAP's web page. The report will include the following information for all states and tribes that have an implementation plan that has been approved by the EPA Administrator under 40 CFR 51.309(h):

- (i) actual regional sulfur dioxide emissions in tons per year;
 - (ii) adjustments to account for:
 - (A) changes in flow rate measurement methods, and
 - (B) changes in emission monitoring or calculation methods;
 - (iii) average adjusted emissions for the last three years for comparison to the regional milestone, if adjustments were made;
 - (iv) regional milestone adjustments to account for participation by eligible states and tribes and the future operation of smelters in Arizona and New Mexico; and
 - (v) regional milestone adjustments due to enforcement actions or settlement agreements.
- (c) A separate report that includes additional states and tribes that have submitted implementation plans that are still under review by the Environmental Protection Agency will also be prepared for information purposes.

(6) The executive secretary will evaluate the draft regional emissions report and will propose a draft determination that the sulfur dioxide milestone has either been met in the region, or has been exceeded. In the event that the TSA has not submitted a draft regional emissions and milestone report to the executive secretary by the December 31 deadline for any year, the executive secretary will prepare the report for that year based upon the annual emissions reports submitted by all participating states and tribes to the WRAP for that year. The executive secretary will modify the data in these annual emissions reports, or use data where such report(s) have not been submitted, based upon direction received from the Environmental Protection Agency.

(7) The executive secretary will advertise availability of the draft regional emissions report and will notify the public of the draft determination by publishing a notice in newspapers of general circulation throughout Utah. A 30-day public comment period will be established, and a public hearing will be held during the public comment period. The executive secretary will also submit the draft determination to EPA for review and comment concurrently.

(8) The executive secretary will consider any comments received during the comment period, and will submit a copy of all comments to the WRAP and to all participating states and tribes along with a response that addresses the comments.

(9) The WRAP will compile the comments and responses from all participating states and tribes and prepare a draft final regional emissions report. The report will be submitted to the states and tribes that are participating in the program and, if necessary, the report will propose a common program trigger date.

(10) The executive secretary will review and approve the final regional emissions report. The executive secretary will then submit this report to the Environmental Protection Agency along with a final determination that the milestone either has been met in the region, or that the milestone has been exceeded and the WEB Trading Program has been triggered in Utah. This determination will be submitted to the Environmental Protection Agency by the end of March, fifteen months following the milestone year. The first determination will be submitted by March 31, 2005, for the 2003 milestone. If the milestone has been exceeded, the common trigger date proposed in the regional report will become the program trigger date for purposes of implementing the WEB Trading Program. In the event that the program trigger date must be established by the executive secretary in the absence of a regional emissions and milestone report prepared by the WRAP, the program trigger date will be March 31 of the applicable year.

(11) The executive secretary will publish a notice of the final determination in newspapers of general circulation throughout the state of Utah. This notice will include the milestone and the final annual regional SO₂ emissions for that year. If the milestone has been exceeded, the notice will specify the program trigger date and the first year that WEB sources must be in compliance with the WEB Trading Program provisions as outlined in R307-250-12.

d. Year 2013 Assessment

(1) Initial Assessment in 2013 Periodic SIP Review.

(a) The executive secretary will work cooperatively through the WRAP with other participating states and tribes to develop a projected emission inventory for SO₂ through the year 2018, using the 2010 regional inventory as a baseline. This projected inventory will be included in the 2010 annual emission and milestone report that will be completed in March 2012 as outlined in paragraph E.1.c of this plan.

(b) The executive secretary will evaluate the projected inventory, and based upon this information will make an assessment of the likelihood of meeting the regional milestone for the year 2018. The executive secretary will include this assessment as part of Utah's progress report that must be submitted by December 31, 2013, as required by 40 CFR 51.309(d)(10).

(2) Regional Emissions Report for 2012.

(a) The executive secretary will prepare an SO₂ emission report for the year 2012 by September 30, 2013, as described in paragraph E.1.c(1) of this plan. The

executive secretary will include a list of all known or anticipated sources in Utah that are anticipated to affect total SO₂ emissions in 2018. This may include permitted sources, projects that are still in the planning stage, or projections from the affected sources of anticipated emissions in 2018. The status of these projects will be described to provide a better understanding of the degree of certainty that individual projects will be completed by 2018.

(b) The WRAP will compile the information from all participating states and tribes, prepare draft SO₂ inventory projections for the year 2018, and estimate the effect of known future sources on SO₂ emissions. Projected 2018 emissions will be compared to the 2018 milestone. This information will be included in the draft regional emissions report for 2012 that will be submitted to the executive secretary by December 31, 2013, as outlined in paragraph E.1.c(5) of this Plan. The draft report will be published on the WRAP web site for a period of public review and comment for not less than 30 days.

(3) Consensus Decision.

The executive secretary commits to meet with the participating states and tribes in March 2014 to discuss any comments received on the 2018 emission projections in the draft report. The participating states and tribes will decide, through a consensus process, whether it is necessary to trigger the WEB trading program early in order to meet the SO₂ emission reduction goals in 2018.

(4) Early Trigger: Timing.

If the participating states and tribes unanimously decide in the March 2014 meeting that an early trigger of the backstop trading program is necessary, the executive secretary will trigger the WEB Trading Program and the timing of the program elements will be adjusted as follows to ensure that the WEB Trading Program is in place in 2018.

(a) The date of the consensus decision by the participating states and tribes to voluntarily trigger the WEB trading program will become the program trigger date.

(b) Allowances for 2018 will be distributed to WEB sources by January 1, 2015.

(c) The first control period will be the year 2018. WEB sources will need to demonstrate at the end of the first control period that they have enough allowances to cover their 2018 SO₂ emissions.

(5) Public Notification.

The executive secretary will publish notice of the decision in newspapers of general circulation in Utah. If applicable, the notice will include a statement that the WEB Trading Program is in effect and will specify the program trigger date.

e. Special Penalty Provisions for the 2018 Milestone

If the WEB Trading Program is triggered as outlined in paragraph E.1.c of this Plan, and the first control period will not occur until after the year 2018, a special penalty will be assessed if the 2018 milestone is exceeded.

(1) The executive secretary will allocate allowances to all WEB sources using the methods established in the 2013 SIP revision described in Part E.4 of this plan. WEB sources will have the option to buy and sell allowances during a two-month allowance transfer period as provided in R307-250-13(1)(c).

(2) At the end of this two-month allowance transfer period, compliance with the allowance limitation will be determined as provided in R307-250-12. Penalties will be assessed for SO₂ emissions that are greater than the allowance limitation for each WEB source as provided in R307-250-12(3). However, notwithstanding R307-250-12(1) through (3), SO₂ emissions in the year 2018 for each WEB source will be determined in accordance with the Sulfur Dioxide Milestone Inventory requirements of R307-150.

(3) The 2018 special penalty provision will continue to be applied each year after 2018 until the 2018 milestones have been achieved.

2. Pre-Trigger Emissions Tracking Requirements

a. SO₂ Emission Inventory

40 CFR 51.309 sets forth emissions inventory requirements for tracking compliance with the SO₂ milestones. R307-150 has been revised to supplement Utah's inventory requirements to satisfy the needs of this program.

(1) *Applicability.* The sulfur dioxide milestone inventory requirements of R307-150 require all stationary sources with actual emissions of 100 tons per year or more of SO₂ in the year 2000, or in any subsequent year, to submit an annual inventory of SO₂ emissions, beginning with the 2003 emission inventory. A source that meets these criteria and then emits less than 100 tons per year in a later year must continue to submit an SO₂ inventory for tracking compliance with the regional SO₂ milestones until 2018 or until the WEB Trading Program has been fully implemented and emission tracking is occurring under R307-250-9, whichever is earlier.

(2) R307-150 contains enforceable requirements for WEB sources.

(a) Each source will submit an annual inventory of SO₂ emissions.

(b) Each source will use appropriate emission factors and estimating techniques and document the emissions monitoring or estimation methodology used.

(c) Each source will include emissions from start up, shut down, and upset conditions in the annual total inventory.

(d) Each source subject to the federal acid rain program will use methods from 40 CFR Part 75 to report emissions from all sources.

(e) Each source will include the rate and period of emissions, the specific installation that is the source of the air pollution, composition of air contaminant, type and efficiency of the air pollution control equipment and other information necessary to quantify operation and emissions, and to evaluate pollution control.

(f) Each source will retain records for a minimum of 10 years from the date of their creation, or if the record was the basis for an adjustment to a milestone, 5 years from the date of an implementation plan revision, whichever is longer.

(3) The executive secretary will quality-assure the submitted inventory data as outlined in the Inventory Preparation Plan. The executive secretary will screen the inventories to identify changes in emission measurement techniques that would require an inventory and milestone adjustment as outlined in paragraph E.1.c(3) of this Plan.

(4) The executive secretary will retain historical emission inventory records for non-utilities from 1996 and 1998 that may affect milestone calculations under paragraph E.1.c(3) and allocation decisions under paragraph E.3.a of this plan until the year 2018 to ensure that changes in emissions monitoring techniques can be tracked.

b. Development of Emission Tracking System

The executive secretary will work cooperatively with the WRAP to ensure that an emission tracking system for the regional SO₂ inventory is developed and maintained.

c. Periodic Audit of Pre-Trigger Emission Tracking Database

(1) During the pre-trigger phase when the executive secretary is tracking compliance with the regional SO₂ milestones, the executive secretary will work cooperatively with the participating states and tribes to ensure that an independent audit of the tracking database is conducted to make sure that the WRAP is accurately compiling the regional emissions report.

(a) The first audit will occur during the year 2006 and will review data collected during the first two years of the program.

(b) Subsequent audits will occur in 2011, which will cover emissions years 2005-2009, and 2016, which will cover emissions years 2010-2014.

(2) The primary focus of the audit will be the process that is used to compile the regional inventory from the data provided by each state and tribe, and the tracking of accumulated changes during the period between SIP revisions. The audit will also review the accuracy and integrity of the regional reports that are used to determine compliance with the milestones. The audit will not be a full review of Utah's process for compiling and reporting SO₂ emissions, but will include a broad review of Utah's inventory management and quality assurance systems, including the presence and exercise of systems to assure data quality and integrity.

(3) The audit will discuss the uncertainty of emissions calculations, and whether this uncertainty is likely to affect the annual determination of whether the milestone is exceeded. It will identify any recommended changes to emissions monitoring or calculation methods or data quality assurance systems. It will also review and recommend any changes to improve the administrative process of collecting the annual emissions data at the state and tribal level, compiling a regional emission inventory, and making the annual determination of whether the WEB Trading Program has been triggered.

(4) Changes to the SO₂ Milestones and Backstop Trading Program, including any changes to the milestones due to the results of these periodic audits, will be submitted to EPA as a SIP revision as part of the five-year SIP review required by 40 CFR 51.309(d)(10).

(5) The executive secretary will advertise the availability of the draft audit report by publishing a notice in newspapers of general circulation in Utah. A 30-day public comment period will be established, and a hearing will be held during the public comment period. The executive secretary will respond to comments and provide notice of the availability of the final audit report. The executive secretary will submit the final audit report to the EPA regional office.

3. WEB Trading Program Requirements

a. Initial Allocation of SO₂ Allowances

(1) Draft Allocation Report.

Within six months of the program trigger date, as outlined in paragraph E.1.c(11) of this plan, the executive secretary will submit a draft allocation report to all participating states and tribes and to the TSA. This report will contain the following information:

(a) A list of all WEB sources in Utah as defined in R307-250 that groups the sources into two categories:

(i) Category 1: WEB sources that commenced operation prior to January 1, 2003. These sources will receive a floor allocation and will be eligible for the reducible portion of the allocation.

- (ii) Category 2: WEB sources that commenced operation on January 1, 2003 or a later date. These sources will receive a floor allocation, but will not be eligible for the reducible allocation. The floor allocation for Category 2 sources will be deducted from the new source set-aside.

WEB sources that have received a retired source exemption under R307-250-4(4) will be included in the allocation process in the same manner as WEB sources that are currently operating. However, sources that were permanently shut down prior to the program trigger date are not considered WEB sources under R307-250-4(1) and would therefore not be included in the allocation process.

(b) The floor allocation for all WEB sources in Utah.

- (i) For non-utility category 1 WEB sources, the floor allocation will be as established in the E.H. Pechan Report, “Market Trading Forum Non-Utility Sector Allocation Final Report from the Allocations Working Group” (November 2002). If any additional category 1 sources are identified, the executive secretary will calculate a floor allocation using the methodology outlined in the E.H. Pechan Report.

- (ii) For utility category 1 WEB sources, the floor will be calculated by first assigning a “clean unit” emission rate to each unit. The clean unit emission rate will then be multiplied by an annual heat input (MMBtu) that represents a realistic upper bound for the unit.

(Note: The floor level approach described above is designed to address equity issues regarding the allocation process for utilities. The State of Utah is participating in ongoing discussions with the other participating states, tribes and regional stakeholders to ensure that all equity issues have been addressed.)

Principles

- Each unit will have enough allowances to operate as a clean source and at an operating rate (capacity factor) that is a realistic upper bound for the unit.
- There will not be significant winners and losers in this process.
- The focus is on a fair approach that is applied equally to all sources rather than on state and tribal budgets.
- The allocation process will use data that reflect current conditions, including current monitoring methodologies.

Equity Issues

- Sources that are currently burning very low sulfur coal may see changes in their supply in the future. Historic actual emissions may not reflect future operations.
- Sources that are currently operating at a low utilization may not reach full capacity in the future. Assumptions about growth that are realistic on the regional level may provide a windfall to some sources, and not provide adequate allowances for other sources.
- There are some utility units in the region that are not BART-eligible and are operating at a low level of control for SO₂. The relative responsibility of BART-eligible vs. non-BART-eligible is a consideration in the process.
- Sources that are operating at a high level of control are already bearing the cost of control and this affects their ability to compete in the market.
- Sources that have no SO₂ controls are facing a large expense that could affect their ability to continue to operate.
- Emission rate disparities exist throughout the region.

(iii) For Category 2 WEB sources the floor allocation will be the lower of the permitted SO₂ annual emissions for the WEB source, or SO₂ annual emissions calculated based on a level of control equivalent to BACT and assuming 100% utilization of the WEB source.

(c) A list of certified early reductions, expressed as tons of SO₂. Early reductions will be calculated and certified as follows:

(i) Any WEB source that installs control technology and accepts new permit emissions limits that are, for a non-utility source, below its floor as established in this section, or, for a utility source, below BACT, may apply for an early reduction credit as outlined in R307-250-7(5). The credit will be available for reductions that occur between 2003 and the program trigger year. The application must show that the floor was calculated in a manner that is consistent with the monitoring requirements of R307-250-9(1)(a) and the new permit must contain monitoring requirements that are consistent with R307-250-9(1)(a). Emission units that are monitored using the less stringent monitoring requirements of R307-250-9(1)(b) are not eligible for early reduction credits. The credits accumulate from the time the new controls come on line until the program trigger date and will be allocated to the WEB source over a 10 year period. The use of early reduction credits in any control period is limited to no more than five

percent, systemwide, of the existing available allowances, as provided in paragraph E.3.a(2)(e) of this plan.

(ii) The executive secretary will review the application and will certify early reductions for each full year between 2003 and the program trigger year that meet the requirements of R307-250-7(5) and this plan.

(iii) A source's certified early reductions for all years will be added together to obtain the total certified early reductions for that source.

(d) A list of all renewable energy plants and sources in Utah that began operation after October 1, 2000, and the MW of installed nameplate capacity for each of these resources. Renewable energy credits will be granted at a rate of 2.5 tons per MW, and will accumulate from the beginning of the facility's operation. Their use in any control period is limited to no more than five percent, systemwide, of the existing available allowances, as provided in paragraph E.3.a(2)(f) of this plan.

(e) Historical SO₂ emissions data for all Category 1 sources for the purposes of calculating the reducible allocation.

(i) For utilities, the average of the years 2000 – 2002. Another time period may be used for individual emission units, if needed, to be representative of normal operating conditions.

(ii) For non-utilities, the average of annual SO₂ emissions for the years 1996 and 1998.

(f) Changes due to enforcement actions or settlement agreements as a result of enforcement actions. The adjustment will be determined in accordance with paragraph E.1.c.(3)(c) of this Implementation Plan. The difference between the WEB source's allocations prior to enforcement and after the enforcement action will be removed from the allocation pool.

(2) *Compiled Allocation Report.*

The TSA will compile the information provided by all participating states and tribes into a draft regional allocation report, and will submit this draft regional report to the executive secretary and all participating states and tribes for review and comment thirty days after receiving the preliminary allocation reports. The draft regional allocation report will include a proposed budget for each state and tribe and the proposed allocation for each WEB source in Utah.

The following methodology for calculating the proposed regional allocation for utilities and non-utilities is based on the assumption that the states of Arizona, Oregon, New Mexico, Utah and Wyoming are the only participating states in the WEB Trading

Program. These 5 states are actively pursuing a SIP under section 309 of the Regional Haze Rule and it is unlikely that any other states will be able to develop a SIP under section 309 by the deadline of December 31, 2003. The State of Utah will work closely with the other four states that are developing 309 SIPs to ensure that the regional allocation is distributed consistently and fairly and to address any change in status that may affect this process. Tribal nations may participate in the program at a later date under the provisions of the Tribal Authority Rule. There are currently four category 1 sources operating on tribal lands under the jurisdiction of three tribal nations. The following methodology will remain unchanged if any of these tribal nations opt in to the program at a later date because the allocation for any of the four existing tribal sources will be covered by the opt-in adjustment for the tribe, and the allocation for any new sources will be covered by the regional new-source set-aside.

(a) Table 6 shows the calculation of the available allocation for existing sources. The base milestone for the 5-state region calculated in accordance with paragraph E.1.a(2) of this plan is the starting point. The base milestone does not include the smelter set-aside. 20,000 tons of SO₂ is then subtracted for a tribal set-aside.

NOTE: If either the BHP San Manuel or Hidalgo Smelter resumes operations, the milestone adjustment calculated in paragraph E.1.a(3) of this Plan will be the allocation for that smelter, and will be in addition to the allocations determined from the base milestone as outlined in this subsection. References to the non-utility allocation throughout the remainder of Part E will not include the potential allocation to either of these suspended smelters.

Table 6. Utility/Non-utility Split

	Base Milestone from Table 2	Tribal Set- Aside	New Source Set-aside	Remaining Allocation	Utility Portion	Non-utility portion
2003	446,904	20,000	6,390	420,514	275,027	145,488
2004	446,904	20,000	6,390	420,514	275,027	145,488
2005	446,904	20,000	6,390	420,514	275,027	145,488
2006	446,904	20,000	6,390	420,514	275,027	145,488
2007	446,904	20,000	6,390	420,514	275,027	145,488
2008	447,014	20,000	12,902	414,112	275,636	138,476
2009	447,123	20,000	12,902	414,221	275,708	138,513
2010	447,333	20,000	12,902	414,331	275,782	138,549
2011	447,333	20,000	12,902	414,331	275,782	138,549
2012	447,333	20,000	12,902	414,331	275,782	138,549
2013	435,455	20,000	19,370	396,085	259,171	136,914
2014	423,676	20,000	19,370	384,306	251,463	132,843
2015	411,898	20,000	19,370	372,528	243,757	128,771
2016	411,898	20,000	19,370	372,528	243,757	128,771
2017	411,898	20,000	19,370	372,528	243,757	128,771
2018	309,087	20,000	19,370	269,717	155,367	114,350

(b) Table 7 shows the new source set-aside for the 5-state region.

(i) The new source set-aside is calculated by subtracting the new source set-aside adjustment listed in Table 7 for all states and tribes that do not have a federally approved Implementation Plan for the WEB trading program under 40 CFR 51.309 as of the program trigger date from the maximum possible set-aside for each of the first five years of the trading program.

Table 7. New Source Set-Aside Adjustment

	2003 - 2007	2008 - 2012	2013 - 2018
Maximum Possible Set-Aside	9,000	18,000	27,000
State or Tribe	Adjustment (tons/yr SO₂)		
1. Arizona	1,757	3,596	5,437
2. California	559	1,039	1,532
3. Colorado	1,480	2,945	4,364
4. Idaho	270	496	721
5. Nevada	302	618	1,011
6. New Mexico	1,267	2,512	3,889
7. Oregon	393	795	1,075
8. Utah	640	1,293	1,949
9. Wyoming	2,333	4,706	7,020
10. Tribes	No adjustment needed	No adjustment needed	No adjustment needed

(ii) Subtract the floor allocation for all WEB sources in the region that were identified as Category 2 from the new source set-aside for the 5-state region to determine the available allocation for new sources that begin operation after the program trigger date. The allocation process for these new sources is described in Part E.3.c of this plan.

Example calculation of the new source set-aside.

The example uses the following assumptions:

- Emissions exceed the milestones based on an average of the years 2003-2005.
- The program trigger date is March 31, 2007.
- The first 5 years of the program are 2011-2015.
- Five states are participating in the program (AZ, NM, OR, UT, WY).
- New sources that commenced operation between January 1, 2003 and the program trigger date have a total floor allocation of 6,000.

	2011	2012	2013	2014	2015
Maximum Possible Set-Aside	18,000	18,000	27,000	27,000	27,000
5-State Adjustment	- 5,098	-5,098	-7,628	-7,628	-7,628
Floor for Category 2 Sources	-6,000	-6,000	-6,000	-6,000	-6,000
Remaining New Source Set-aside	6,902	6,902	13,372	13,372	13,372

(c) The remaining allocation shown in Table 6 is available for distribution to category 1 sources. The final two columns in Table 6 split this remaining allocation into a utility allocation and a non-utility allocation.

(d) Subtract the floor allocations for all category 1 utility and non-utility sources in the region from the utility allocation or the non-utility allocation.

(e) Calculate the early reduction allocation.

(i) Divide the number of certified early reduction credits for all WEB sources in the region by ten.

(ii) Add the utility allocation for 2018 to the non-utility allocation for 2018 and then multiply this total by 0.05.

(iii) If the product of paragraph (i) is no more than the product of paragraph (ii), the product of paragraph (i) is the early reduction allocation, and each source is allocated ten percent of its early reduction credits.

(iv) If the product of paragraph (i) is more than the product of paragraph (ii), the early reduction allocation for the region is the product of paragraph (ii). To determine a source's allocation, divide the product of paragraph (ii) by 0.10 times the total number of early reduction credits and apply that ratio to the early reduction credits claimed by the source.

(v) Split the regional early reduction allocation based on the ratio of utility to non-utility allocations in 2018 and subtract the early reduction allocation from the utility and non-utility allocation totals.

(vi) The early reduction allocation will be calculated in a similar manner for the second five-year allocation period under this program, and will then be discontinued for any future allocation periods.

(f) Calculate the regional renewable energy allocation.

- (i) Add together the reported MW of installed nameplate capacity for renewable energy facilities reported by the participating states and tribes, and then multiply this number by 2.5.
 - (ii) Add the utility allocation for 2018 to the non-utility allocation for 2018 and then multiply this total by 0.05.
 - (iii) If the product of paragraph (i) is no more than the product of paragraph (ii), the product of paragraph (i) is the renewable energy allocation.
 - (iv) If the product of paragraph (i) is greater than or equal to the product of paragraph (ii), the renewable energy allocation for the region is the product of paragraph (ii). To determine a source's allocation, divide the product of paragraph (ii) by the total number of renewable energy credits and apply that ratio to the early reduction credits claimed by the source.
 - (v) Split the regional renewable energy allocation based on the ratio of utility to non-utility allocations in 2018 and subtract the renewable energy allocation from the utility and non-utility allocation totals.
- (g) Any remaining allowances in the utility allocation or the non-utility allocation after subtraction of the early reduction allocation and the renewable energy allocation is considered the reducible allocation and will be assigned to Category 1 sources.
- (i) For non-utility sources, add together the historic SO₂ emissions in accordance with paragraph E.3.a(1)(e) of this plan for all Category 1 non-utility sources in the region to determine an historic emission total. Determine a percent contribution of SO₂ emissions for each WEB source to the historic emission total. Multiply the non-utility reducible allocation by the percent contribution for each WEB source to determine a reducible allocation for each WEB source.
 - (ii) For utility sources, the reducible allocation will be distributed to sources that emitted above their floor in the baseline period (2000 through 2002) based on their percentage of total floor emissions for sources emitting above the floor times the number of reducible allowances available for the first five years of the WEB Trading Program. The number of allowances for any source receiving a reducible allocation will not exceed a recent historic emission rate times a heat input that represents a realistic upper bound for the unit.

[Note: The approach for distributing the reducible utility allocation described above is designed to address equity issues regarding the allocation process for utilities. The State of Utah is participating in ongoing discussions with the other participating states, tribes and regional stakeholders to ensure that all equity issues have been addressed. The principles and equity issues that are under discussion are listed in paragraph E.3.a.(1)(b)(ii) of this plan.]

((i)) Add together the floor allocation, early reduction allocation, renewable energy resource allocation, and reducible allocation for each WEB source and each renewable energy source to determine the proposed allocations for the first five years of the WEB Trading Program.

((j)) Add together the proposed allocations for all of the WEB sources in the jurisdiction of each participating state and tribe to determine a draft SO₂ allowance budget for each state and tribe.

(3) Public Comment Period.

The executive secretary will publish notice of availability of the draft regional allocation report in newspapers of general circulation throughout Utah. A 30-day public comment period will be established, and a hearing will be held during the comment period. The executive secretary will consider the comments, and will revise the draft report as needed.

(4) Proposed Changes Submitted to Tracking System Administrator.

The executive secretary will submit proposed changes to the budget and source allocations to the TSA within sixty days of receipt of the draft regional allocation report.

(5) Compilation of Changes.

The TSA will compile the proposed changes and will submit a final draft regional allocation report to the executive secretary for approval within 30 days of receipt of the recommended changes.

(6) Final Regional Allocation Report.

The executive secretary will review the final regional allocation report and will determine the budget for Utah and allocations for WEB sources within Utah in accordance with the provisions of this plan within thirty days of receipt of the final draft allocation report. The executive secretary will submit the budget and allocations for all WEB sources in Utah to EPA, and will notify the TSA that the WEB source allocations should be recorded in the allowance tracking system.

(7) Notification.

The executive secretary will notify all WEB sources within Utah of the number of allowances that have been recorded in their compliance account. The notice will include a warning to the WEB sources that reported annual sulfur dioxide emissions may change due to the implementation of new monitoring methods as required by R307-250-9. Allocations for the first five years of the program will not be adjusted to account for

changes due to the new monitoring method. However, allocations during the next five-year distribution will be adjusted as needed to account for paper changes in emissions due to changes in monitoring methodology.

b. Distribution of Allowances for Future Control Periods

By December 1 of the year five years after the initial allocation, the executive secretary will follow the process outlined in paragraph E.3.a of this plan to distribute allowances for the next five-year period. This process will continue every five years until allowances have been allocated through the year 2018.

c. Distribution of the New Source Allocation

(1) The new source set-aside will be available for two categories of sources.

(a) A new WEB source is eligible to receive an annual floor allocation equal to the lower of the annual sulfur dioxide limit in the source's approval order, or sulfur dioxide annual emissions calculated based on a level of control equivalent to BACT and assuming 100% utilization of the WEB source, beginning with the first full calendar year of operation and in accordance with the provisions of R307-250-7(6).

(b) An existing WEB source that has increased production capacity after obtaining a new approval order issued under R307-401 is eligible to receive an allocation from the new source set-aside equal to:

(i) the permitted annual sulfur dioxide emission limit for a new unit; or

(ii) the permitted annual SO₂ emission increase for the WEB source due to the replacement of an existing unit with a new unit or the modification of an existing unit that increased the production capacity of the WEB source.

Permitted emission increases due to fuel switching or other process changes that are not directly related to increased production capacity are not eligible for allocations from the new source set-aside. The allocation from the new source set-aside in the first year of operation will be adjusted to account for the number of days that the source is operating in that first year.

EXAMPLE. A new unit with a nameplate capacity of 400 MW is constructed at a power plant with two existing units with nameplate capacities of 400 MW and 300 MW. The two existing units install SO₂ controls and reduce emissions to meet PSD requirements for the construction of the new unit. In this example, the source would continue to receive a floor and a reducible allocation for each of the existing units, and would also be eligible to receive an allocation from the new source set-aside for the new unit. Even though total SO₂ emissions will decrease at this plant due to the construction of the new unit, the allowances allocated to the source will increase to reflect the increase in production

capacity of 400 MW of electricity. If the new unit comes on line on July 1 the allocation for the first year will be reduced by 50 percent because the unit was operational for half of the year.

(2) Allocations from the new source set-aside will remain constant for the applicable WEB source and will be made on an annual basis by March 31 of each year for the current control period. When the next five-year allocation block is distributed as outlined in paragraph E.3.b of this plan, all sources with an allocation under the new source set-aside will receive a five-year allocation block from the new source set-aside, and will continue to receive this allocation in future five-year allocation blocks.

(3) Owners or operators of new WEB sources or modified WEB sources that meet the eligibility requirements of (1) may apply for an allocation from the new source set-aside by submitting a written request to the executive secretary as outlined in Subsection R307-250-7(6).

(4) The executive secretary will review the application for an allocation for accuracy and completeness, and will notify the source of intent to distribute allocations from the regional new source set-aside pending verification that allowances are available in the new source set-aside account. The executive secretary will then forward the request to the TSA.

(5) The TSA will document the date that the request is received by the TSA. Requests for allocation of allowances from the new source set-aside will be processed in the order received. The TSA will deduct the number of allowances requested from the regional new source set-aside that was established by the participating states and tribes, and will then record an equal number of allowances in the source's compliance account for each remaining year of the five-year period. The TSA will then send written notification to the source and to the executive secretary that the allowances have been recorded in the source's compliance account.

(6) If there are insufficient allowances remaining in the new source set-aside to fulfill the request, the source must purchase the allowances required to demonstrate compliance. Any eligible WEB source that does not receive an allocation from the new source set-aside because the set-aside was depleted will be first in line to receive an allocation when the new source set-aside is increased in the next five-year period as outlined in Table 7 of this plan. If there is more than one such source, their allocation requests will be processed in the order they were received by the TSA.

(7) A source that has received a retired source exemption and continues to receive an allocation as a retired WEB source is not eligible to receive an allocation from the new source set-aside.

d. Regional Tribal Set-aside

- (1) Each year after the program is triggered, 20,000 allowances will exist as a tribal set-aside.
- (2) The tribal caucus of the WRAP has stated its intent to determine the means for distributing the allowances among the tribes within one year after the program trigger date. The executive secretary understands that there will be a process that will meet the tracking and data security requirements of the allowance tracking system by which a tribe will move its set-aside allowances into the trading program for the purposes of trading.
- (3) The executive secretary recognizes that the tribal set-aside allowances are bonus allowances for the tribes and, as such, are separate and additional to any allowances included in a tribal budget or the new source set-aside as outlined in the allocation report that is prepared in accordance with paragraph E.3.a(6) of this plan.

e. Opt-in Sources

The WRAP Market Trading Forum has recommended including provisions in this plan that would allow smaller sources to opt in to the program. Opt-in sources may provide a more cost-effective way to reduce overall regional SO₂ emissions, and therefore may strengthen the market incentives of this program. While the benefits of allowing sources to opt in to the program are important, the program must also provide safeguards to ensure that the integrity of the program is not affected. For example, it would be counterproductive to allow sources that were already planning to shut down to opt in to the program and then sell allowances to an existing source. In this example, regional emissions could slowly creep upward in a manner that is not consistent with the goals of the SO₂ milestones.

The State of Utah is deferring inclusion of provisions for opt-in sources until a future SIP revision to allow time to thoroughly consider how to provide the flexibility and potential benefits to the market by expanding the program while also ensuring that the SO₂ emission reduction goals are maintained.

f. WEB Allowance Tracking System (WEB ATS)

Subsection 40 CFR 51.309(h)(4)(v) requires a centralized system for the tracking of allowances and emissions. The centralized system will be referred to as the WEB Allowance Tracking System (WEB ATS or ATS). The WEB ATS must provide that all necessary information regarding emissions, allowances, and transactions is publicly available in a secure, centralized database. The ATS must ensure that each allowance is uniquely identified, allow for frequent updates, and include enforceable procedures for recording data.

The executive secretary will work cooperatively with other states and tribes participating in the WEB Trading Program to design this system. The executive secretary will be

responsible for ensuring that all the ATS provisions are completed as described in this plan.

The ATS will not exist unless the program is triggered. Prior to the implementation of the WEB Trading Program, a separate emissions tracking database will be employed to track the ongoing emissions of sources emitting SO₂ at amounts equal to or greater than 100 tons per year. The emissions tracking database, which was used to track and measure SO₂ emissions against the milestones, will still exist once the WEB Trading Program is triggered; however, it will become incorporated into the SO₂ Allowance Tracking System. Both the emissions tracking database and the ATS will be centralized systems and data will be posted in an electronic, Web-based program and available to all persons.

The participating states and tribes will contract with a common TSA to service and maintain the WEB ATS. It is envisioned that the ATS will require the use of a contracted consultant or database design engineer to create a secure, efficient and transparent tracking system. Because the ATS will be utilized by all states and tribes participating in the program, the design will require a uniform approach and level of security that will satisfy regional needs and concerns as well as meet the electronic, Web-based, access needs and security provisions. Due to the dynamic needs of the marketplace, the ATS will require a database that will reflect the current status of allowances and allowance transactions. The ATS will be operational within one year after the program trigger date.

Specifications of the WEB ATS such as emissions tracking, the recording of allowance transactions, account management, system integrity and transparency are outlined in the Utah TSD Supplement. The specifications will be used as a guideline for developing the ATS if the program is triggered. However, the overall design will be greatly affected by computer software and hardware changes that will occur between the adoption of this Plan and the program trigger date. The on-going experience gained from other trading programs also may lead to improvements in the design of the system. The specifications and related sections of R307-250 detail how a WEB source will register for the ATS and how the source will, through an account representative, establish accounts, transfer allowances, and track unused allowances from a previous year.

Neither the executive secretary nor the TSA will adjudicate any dispute between the parties concerning the authorization of any account representative with regard to any representation, action, inaction, or submission of the account representative.

As an example of how the WEB ATS will generally function, once the WEB Trading Program is triggered, a WEB source will have its allowance allocation determined. At the same time, the WEB source's account representative will register for the ATS under R307-250-6, and a compliance account will be established under R307-250-8. Each allowance will be assigned a serial number. The allowance serial number will be used by the WEB ATS to track allowance allocations, transfers (R307-250-10), and deductions, and to account for any unused allowances from a previous year (R307-250-11). The serial number also will be assigned to each allowance recorded in a general account, which is an

account for allowances that are not held to meet program compliance requirements. Furthermore, the ATS will track tribal allowance set-asides and new source allowance set-asides not yet assigned to either a compliance or general account.

It is important to note that while this plan has provided a design for and an operational understanding of the ATS, the components of the ATS will need to be examined and possibly altered upon each required SIP revision.

g. Allowance Transfers

(1) 40 CFR 51.309(h)(4)(viii) requires the Plan to include provisions detailing the process for transferring allowances between parties. Transfers are defined as the conveyance from one account to another account (compliance account or general account) of one or more allowances by whatever means, including but not limited to purchase, trade, or gift in accordance with the procedures established in R307-250-10. This includes the transfer of allowances for the purpose of retirement. Once an allowance is retired, it is no longer available for transfer to or from any account. Allowances may be purchased by any person for the purpose of retirement.

(2) The TSA will have specific recording duties involving transfers. These required procedures will be detailed in the service contract and will include the following activities.

(a) Recording of Allowance Transfers.

(i) Within five business days of receiving an allowance transfer, except when the transfer does not meet the requirements of R307-250-10, the TSA will record an allowance transfer by moving each allowance from the transferor account to the transferee account as specified by the request, provided that the transfer is correctly submitted and that the transferor account includes each allowance identified in the transfer.

(ii) Any allowance transfer that is submitted for recording following the allowance transfer deadline and that includes any allowances allocated for a control period prior to or the same as the control period to which the allowance transfer deadline applies will not be recorded until after completion of the compliance account reconciliation.

(iii) Where an allowance transfer submitted for allowance transfer recording fails to meet the requirements of R307-250-10, the TSA will not record the transfer.

(2) Notification of the Recording of Allowance Transfers. The TSA has specific responsibilities involving the notification of the recording of any transferred allowances, including the failure to record any transfer of allowances. Again, these required procedures will be outlined in the service contract, but include the following.

(a) Within five business days of the recording of an allowance transfer, the TSA will notify the transferor's and transferee's account representatives of both accounts, and make the transfer information publicly available on the Internet.

(b) Within five business days of receipt of an allowance transfer that fails to meet the requirements of R307-250-10, the TSA will notify the account representatives of both accounts of the decision not to record the transfer, and the reasons for not recording the transfer.

h. Use of Allowances from a Previous Year

(1) Background.

40 CFR 51.309(h)(4)(ix) allows states to include in the plan provisions for the accounting of unused allowances from a previous year. The unused allowances may be kept for use in future years in accordance with R307-250-11 and there are restrictions on the use of the allowances in accordance with R307-250-11. The federal rule also requires that allowances kept for use in future years may be used in calendar year 2018 only to the extent that the plan guarantees that such allowances will not interfere with the achievement of the 2018 milestone as outlined in Table 3 of this plan, adjusted according to the provision of paragraphs E.1.a(2) and (3) of this Plan. R307-250-11 addresses this by prohibiting the use after the year 2017 of allowances allocated for the years 2003 – 2017. This provision ensures that actual emissions will be less than the 2018 milestone because only allowances allocated for the year 2018 could be used to show compliance in that year. The provision also maintains flexibility by resetting the baseline to the year 2018 and then allowing sources to once again use extra allowances to show compliance in any future year. This flexibility is important for sources that have variable operations because the source may build up a reserve of unused allowances for use in a high production year.

The Annex explains the benefits of allowing the WEB source to use unused allowances from previous years, including increased flexibility and early reduction stimulus. The risk in allowing the use of allowances carried from a previous year could be an increase in emissions in later years as the unused allowances are withdrawn for compliance.

Because the regional haze SIP is based on reasonable progress requirements related to the remedying or prevention of any future visibility impairment, it is important to assure the use of these allowances will not interfere with attainment or maintenance of any reasonable progress goals. The safeguard employed here to mitigate this type of risk is termed, "flow control", and is described in paragraph (2) below.

(2) Flow Control Provisions.

(a) At the end of each control period, WEB sources may transfer allowances in and out of their compliance account for a period of 60 days to ensure that the account will contain enough allowances to cover sulfur dioxide emissions during

the previous year. At the end of the sixty-day transfer period, allowances will be deducted from the compliance account of each WEB sources in an amount equal to the sulfur dioxide emissions of that source during the control period.

(b) After the deductions have been completed, the Tracking System Administrator will perform the following calculations and prepare a report according to paragraph E. 3.k(1)(b) of this Plan.

(i) Determine the total number of allowances remaining in the allowance tracking system that were allocated for the just completed control period and all previous control periods.

(ii) If the number calculated in (i) exceeds 10 percent of the milestone for the next control period, then the flow control procedures in R307-250-11 will be triggered for that next control period. These flow control provisions will discourage the excessive use of allowances that were allocated for an earlier control period without establishing an absolute limit on their use. WEB sources will maintain the option to use allowances allocated for an earlier control period, but will be required to use two allowances for each ton of SO₂ emissions. Flow Control operates as follows.

(A) The flow control ratio will be calculated by multiplying 0.1 times the milestone for the next control period, divided by the total number of unused allowances remaining in the system.

(B) To calculate the number of prior-year allowances that can be used without restriction by a source for the next control period, the TSA will multiply the prior-year allowances by the flow control ratio. The resulting number of allowances may be used on a one-to-one ratio to show compliance with the source's emission limitation as outlined in paragraph E.3.j of this Plan.

(C) The remaining prior-year allowances may be used on a two-to-one ratio to show compliance. Thus, WEB sources will maintain the option to use allowances allocated for an earlier control period, but will be required to use two of those allowances for each ton of SO₂ emissions.

Example: On March 1, 2010 (the compliance transfer deadline for the 2009 control period) the Tracking System Administrator deducts allowances from the compliance account for each WEB source to cover 2009 SO₂ emissions from that source. After completing these deductions, the TSA reports the following information:

Total number of allowances still in the system for the years 2003 – 2009	=	75,000
2010 milestone (5-state, no smelter)	=	508,223
Percent of milestone	=	14.75 %

Because the number of allowances not used in previous control periods is greater than 10% of the milestone, flow control procedures are triggered. In the annual report required in paragraph E.3.k of this Plan, the TSA will then calculate the flow control ratio for 2010:

$$0.1 \times 2010 \text{ Milestone} \div \text{prior year allowances} = \text{flow control ratio}$$

$$0.1 \times 508,223 \div 75,000 = 0.67$$

On March 1, 2011 (the compliance transfer deadline for the 2010 control period) the TSA will apply the 2010 flow control ratio before deducting allowances from each WEB source's compliance account

WEB Source A		
2010 Allowances	=	1,000
Remaining Prior Year Allowances	=	500
2010 Emissions	=	1,400

In this example, the TSA would multiply the prior year allowances by 0.67 to determine the number of prior year allowances that could be used without restriction, at a one-to-one ratio. This would equal 335. The remaining prior year allowances would then be used at a 2:1 ratio. 130 allowances would be needed to cover the remaining 65 tons of SO₂ emissions. The TSA would therefore deduct a total of 1,465 allowances (1,000 + 335 + 130) to cover 1,400 tons of SO₂ emissions.

i. Monitoring/Recordkeeping

(1) For WEB sources subject to 40 CFR Part 75, the TSA will use data that has been quality assured and finalized by the EPA. For WEB sources subject to the monitoring protocol in Appendix E of this Plan, the executive secretary will quality assure and finalize the data in accordance with these provisions for submission to the TSA.

(2) The executive secretary will verify and submit the data to the emissions tracking database as soon as reasonably feasible after annual emissions are reported by the WEB sources. These timelines will be modified, as necessary, according to the monitoring protocols.

(3) *Special Reserve Compliance Accounts.* The WEB Trading Program requires most WEB sources to install continuous emission monitoring systems (CEMS) that meet the monitoring, recordkeeping and reporting requirements of 40 CFR Part 75. However, there are some emission units that are not physically able to install CEMS and there are

also emission units that do not emit enough sulfur dioxide to justify the expense of installing these systems. The WEB Trading Program allows these emission units to continue to use their pre-trigger monitoring methodology, but does not allow the WEB source to sell any allowances that were allocated to that unit for use by another WEB source. The restriction on selling these allowances is needed to ensure that an emission reduction of sulfur dioxide that leads to a sale of allowances is equal to the corresponding increase in sulfur dioxide from the source that buys the allowances. The allowances associated with emission units that continue to use their pre-trigger monitoring methodology are placed in a special reserve compliance account, while allowances for other emission units are placed in a regular compliance account. Allowances may not be traded out of a special reserve compliance account, even for use by emission units with CEMS at the same WEB source. However, the WEB source may transfer allowances into the account as needed to demonstrate compliance with the WEB source's allowance limitation.

R307-250-9(b) allows WEB sources with any of the following emission units to apply to establish a special reserve compliance account:

- (a) any smelting operation where all of the emissions from the operation are not ducted to a stack; or
- (b) any flare, except to the extent such flares are used as a fuel gas combustion device at a petroleum refinery; or
- (c) any other type of unit without add-on sulfur dioxide control equipment, if the unit belongs to one of the following source categories: cement kilns, pulp and paper recovery furnaces, lime kilns, or glass manufacturing.

The emission units described in (a) and (b) cannot physically be monitored using a CEM. The emission units described in (c) do not typically have add-on controls for sulfur dioxide. These units are expected to operate within their floor-level allocation and therefore will not be affected by the market, unless they make a process change and wish to sell allowances on the market. Other sources that are currently emitting sulfur dioxide above their expected allocation will either need to purchase allowances or install sulfur dioxide controls, and it is therefore important that these emission units have an accurate monitoring methodology that is comparable to other sources in the program.

The executive secretary will review the application to monitor under R307-250-9(1)(b). If the emission units meet the criteria in R307-250-9(1)(b), the executive secretary will determine the portion of the WEB source's allocation that is associated with the emission units that will be monitored under R307-250-9(1)(b) and will require the TSA to record that portion of the WEB source's allocation in the special reserve compliance account. The executive secretary will use the methodology for determining allocations described in paragraph E.3.a of this Plan to determine the portion of the allocation that is associated with the Subsection R307-250-9(1)(b) emission units. The executive secretary will notify

the WEB source that the application has either been accepted or rejected, including a notification of the allowances that are to be recorded in the WEB source's regular compliance account and the new special reserve compliance account.

If an emission unit that is monitored under R307-250-9(1)(b) is permanently retired, the TSA will transfer the portion of allowances that were associated with that emission unit from the WEB source's special reserve compliance account to the source's compliance account. These allowances will then be available for use or sale by the WEB source. The allowances will be transferred after the compliance deduction has taken place for the last control period that the unit was in operation.

j. Compliance and Penalties

(1) Compliance. When a WEB source exceeds its allowance limitation, the executive secretary will require the TSA to deduct allowances from the following year's allocation in an amount equal to two times the WEB source's emissions of SO₂ in excess of its allowance limitation. This deduction will be made from the WEB source's compliance account after deductions for compliance are made under R307-250-12. If sufficient allowances do not exist in the compliance account for the next control period to cover this amount, the executive secretary will require the TSA to deduct the required number of allowances, regardless of the control period for which they were allocated, whenever the allowances are recorded in the account.

(2) Penalties. The amount of the financial penalty will be evaluated at each five-year SIP review, and adjusted to ensure that penalties per ton exceed the expected cost of allowances to ensure that this remains a stringent penalty. R307-250 establishes a penalty of \$5,000 per ton for each ton of emissions above the source's allowance limitation. This amount is in addition to the two allowances from the next year's allocation to be deducted from the account for each one allowance of exceedance. For a violation of any provision of the market trading program, each day of the control period is a separate violation under Utah's rule, and each ton of excess emissions is a separate violation. More details on liabilities for different provisions can be found in R307-250.

(3) Smelter Specific Set-aside. Each year, Kennecott Utah Copper (KUC) may submit data to the executive secretary demonstrating that sulfur input and emissions are greater than the baseline levels listed in Table 5 of this Plan. If the executive secretary determines that the criteria in paragraph E.1.a(3)(d) have been met, the executive secretary will require the TSA to record additional allowances in KUC's compliance account to cover the smelter specific set-aside. The allowances will be recorded prior to the allowance transfer deadline to ensure that KUC may use the additional allowances to demonstrate compliance with its allowance limitation.

k. Periodic Evaluation of the Trading Program

(1) Annual Report.

(a) Beginning one year after compliance with the trading program is required, the executive secretary will obtain from the TSA an annual report that contains the following information:

- (i) the level of compliance program-wide;
- (ii) a summary of the use and transfer of allowances, both geographically and temporally;
- (iii) a source-by-source accounting of allocations compared to emissions;
- (iv) a report on the use of unused allowances from a previous year, in order to determine whether these emissions have or have not contributed to emissions in excess of the cap; and
- (v) the total number of WEB sources participating in the trading program and any changes to eligible sources, such as retired sources, or sources that emit more than 100 tons of SO₂ after the program trigger date.

(b) Within 2 months after the allowance transfer deadline for each control period when compliance with the trading program is required, the TSA will prepare a draft report that lists:

- (i) the total number of allowances deducted for the control period,
- (ii) the total number of allowances remaining in the Allowance Tracking System allocated for that control period and any earlier control period,
- (iii) a proposed determination that flow control procedures have either been triggered or have not been triggered for the next control period, and
- (iv) if flow control procedures have been triggered, a draft flow control ratio calculated according to paragraph E.3.h(2) of this Plan.

(c) The executive secretary will evaluate the draft report, and will propose a determination that flow control procedures either have been triggered or have not been triggered for the next control period.

(d) The executive secretary will publish a notice of availability of the draft report in newspapers of general circulation in Utah, and will hold a 30-day public comment period.

(e) After the comment period the executive secretary will make a final determination that the flow control procedures either have been triggered or have not been triggered for the next control period. If the flow control procedures have been triggered, the executive secretary will notify all WEB sources in Utah that flow control procedures will be in effect during the next control period.

(2) *Five-year Evaluation.*

(a) The executive secretary will work cooperatively with other participating states and tribes to conduct an audit of the WEB Trading Program no later than three years following the first full year of the trading program, and at least every five years thereafter. This evaluation does not replace the Plan assessments in 2008, 2013, and 2018. The evaluation will be conducted by an independent third party and include an analysis of:

(i) whether the total actual emissions could exceed the values in Table 3 of this Implementation Plan of the WEB Trading Program even though sources comply with their allowances;

(ii) whether the program achieved the overall emission milestone it was intended to reach;

(iii) the effectiveness of the compliance, enforcement and penalty provisions;

(iv) a discussion of whether states and tribes have enough resources to implement the WEB Trading Program;

(v) whether the trading program resulted in any unexpected beneficial effects, or any unintended detrimental effects;

(vi) whether the actions taken to reduce sulfur dioxide have led to any unintended increases in other pollutants;

(vii) whether there are any changes needed in emissions monitoring and reporting protocols, or in the administrative procedures for program administration and tracking;

(viii) the effectiveness of the provisions for interstate trading, and whether there are any procedural changes needed to make the interstate nature of the program more effective; and

(ix) the integrity of the emissions and allowance tracking system, including whether the procedures for recording transactions are adequate, whether the procedures are being followed and in a timely manner,

whether the information on sources' emissions are accurately recorded, whether the emissions and allowance tracking system has procedures in place to ensure that the transactions are valid, and whether back-up systems are in place to account for problems with loss of data.

(b) The public will have an opportunity to participate in this trading program evaluation.

(c) In the event that any audit results in recommendations for program revisions, the State of Utah, in consultation with the WRAP, will make appropriate modifications to this Plan. The State of Utah will revise this Plan if the program is not meeting its emission reduction goals.

(d) The executive secretary will submit a copy of the report to the EPA regional office.

I. Retired Source Exemption

R307-250-4(4) outlines the procedure that a WEB source must follow to receive a retired source exemption. The exemption would allow the source to continue to receive an allocation, but would exempt the source from monitoring and recordkeeping requirements that would serve no useful function for a source that has ceased operations. The executive secretary will notify the source of its obligation to apply for a retired source exemption upon the cancellation or relinquishment of a permit.

To receive a retired source exemption, the source must submit a request for the exemption to the executive secretary. The executive secretary will review this request, and within 60 days of receipt of the request will notify the source that the retired source exemption has been granted or has been rejected. If the exemption has been rejected, the notification will contain an explanation of the reasons for rejecting the request.

The TSA will continue to record an allocation to a WEB source that has received a retired source exemption. However, the allowances will be recorded in a general account rather than a compliance account for the source. The TSA will transfer any existing allowances in the retired source's compliance account or special reserve compliance account into the general account for the retired source, and will close the compliance accounts.

A WEB source that is permanently retired and that does not request a retired source exemption will forfeit all abandoned allowances in that source's compliance account, as outlined in R307-250-4(4)(e). The forfeited allowances will not be redistributed to other sources, and will be permanently retired from the Allowance Tracking System, as outlined in R307-250-10(3). During the next five-year allowance distribution period the retired source will not receive an allocation, and the allowances that would have been distributed to that source will be added to the new source set-aside.

m. Integration into Permits

40 CFR 51.309 requires that the requirements for emissions reporting and for the trading program be incorporated into a permit that is enforceable as a practical matter by EPA and by citizens to the extent permitted by the Act. It is expected that all WEB sources at least initially will be subject to Utah's Title V permitting requirements. Under R307-415, Utah's delegated Title V permitting program, the pre- and post- trigger requirements of the market trading program fall under the definition of "applicable requirement," and will be incorporated into each source's Title V permit according to the schedules and procedures contained in that rule. R307-250-14 requires that any source that for any reason and at any time is not required to have a permit under R307-415 must obtain a New Source Review permit pursuant to R307-401 et seq. that incorporates the same requirements by submitting a Notice of Intent within 90 days of the program trigger. Both types of permits are enforceable both federally and by citizens pursuant to Utah's SIP.

4. 2013 SIP Revision; Backstop for Beginning of Second Planning Period

In addition to the requirements of 40 CFR 51.309(d)(10), the periodic SIP revision due in 2013 will include the following information:

- a. Source specific allocations for all WEB sources in Utah for the year 2018; and
- b. Either the provisions of a program designed to achieve reasonable progress for stationary sources of SO₂ beyond 2018 or a commitment to submit a SIP revision containing the provisions of such a program no later than December 31, 2016. The program will ensure that the requirements of 40 CFR 51.309 are achieved for the first planning period, including requirements that cannot be measured until after 2018, such as the determination of compliance with the 2018 milestone.

This 2013 SIP revision will provide certainty to sources regarding their potential liability under the special penalty provisions for the year 2018 outlined in paragraph E.1e of this Plan. The calculation of these allocations is delayed until 2013 to provide certainty about the number of sources that will qualify as WEB sources at that time; the allocations needed for new sources in the region, and the magnitude of renewable energy development and early reductions that will be included in the allocation process. It is difficult to estimate the impact of these factors in 2003 because circumstances may change during the next 10 years.

If the 2018 milestone is not met, the starting point for the next planning period will be the 2018 milestones, not actual emissions in 2018.

F. LONG-TERM STRATEGY FOR MOBILE SOURCES

1. Regulatory History and Requirements

In its June 1996 Report, the GCVTC recommended EPA move forward on new national vehicle emission and fuel standards to reduce emissions from mobile sources. The GCVTC also recommended other regional and local strategies be considered to manage mobile source emissions. One of the local strategies was to establish emission budgets for those pollutants in urban areas shown to significantly contribute to visibility impairment in any of the 16 GCVTC Class I areas. The budget caps were to be set at the 2005 emission levels.

When EPA finalized the regional haze rule in July 1999, the rule acknowledged the GCVTC recommendations related to national vehicle emission and fuel standards. EPA included a status of planned actions on those recommendations as of July 1999 (Preamble to the regional haze rule, 64 FR 35753). EPA noted these new measures were over and above those included in the regional haze rule for mobile sources that simply required a cap on emissions in significantly contributing urban areas at the 2005 level. EPA also indicated that emission reductions resulting from new standards adopted after the regional haze rule was approved would be creditable toward reasonable progress. EPA also committed to work with the states if new national standards impacted the efficacy of regional or local strategies.

After the regional haze rule was finalized, EPA established new standards for on-road vehicle emission and fuel standards (65 FR 6698) as well as standards for diesel vehicles and diesel fuel (66 FR 5002). As a result, current mobile source emission projections developed by WRAP for the GCVTC Transport Region indicate overall mobile source emissions will decline continuously from 2003 through the end of the SIP planning period in 2018, which is more than the level of emission reductions that EPA approved to meet reasonable progress by holding mobile source emissions constant from their 2005 level. In addition, new standards for off-road vehicles were proposed by EPA on April 15, 2003, and are expected to be finalized, which will further reduce overall mobile source emissions.

At the April 2003 WRAP Board meeting, the WRAP approved a recommendation for EPA to modify the regional haze rule eliminating the current requirements related to mobile source emission significance determination and budgets for urban areas (40 CFR 309(d)(5)), and replacing those requirements with a new requirement focused on tracking mobile source emission reductions resulting from national standards to assure reasonable progress. This action was based on the finding that emissions of all pollutants from on-road and off-road mobile sources are expected to decline significantly through 2018 except for sulfur dioxide from non-road sources. If EPA adopts new low-sulfur standards for off-road mobile sources then off-road mobile source sulfur dioxide emissions will also decline continuously through 2018. The WRAP Board deliberations did not define

criteria for mobile source significance, leaving the determination of significance under the current rule (40 CFR 51.309(d)(5)(ii)) to the states and tribes.

On July 3, 2003, EPA proposed a direct final rule (68 FR 39842) to amend the mobile sources provision of the Regional Haze Rule consistent with the recommendations of the WRAP. The rule was promulgated on December 22, 2003 (68 FR 71009). The revisions amended 40 CFR 51.309(d)(5)(i) and eliminated the requirements under 40 CFR 51.309(d)(5)(ii) and (iii) for setting mobile sources emissions budgets using the lowest projected level as a planning objective and performance indicator for each area. Instead, the new Section 51.309(d)(5)(i) requires statewide inventories to demonstrate a continuous decline in emissions of each pollutant of concern over the planning period. Should mobile source emission not decline as expected, the State of Utah will review control options for mobile sources and determine if additional controls are needed, consistent with the criteria for reasonable progress. If the State of Utah determines that additional controls are needed, Utah will prepare a revision to the implementation plan.

In addition to the revisions to Section 51.309(d)(5)(i) and the elimination of Sections 51.309(d)(5)(ii) and (iii), a backstop provision as outlined by the WRAP was added. The new Section 51.309(d)(5)(i)(B) requires the State of Utah to assess the need for any long-term strategies to address SO₂ from non-road mobile sources by no later than December 31, 2008. States may determine if a SIP revision is necessary to address SO₂ from mobile sources by considering whether the emission reductions anticipated or achieved by any Federal standards in place addressing fuel sulfur content for non-road engines are sufficient to meet reasonable progress. The direct final rule also renumbered the requirement to review other GCVTC mobile source strategies from (d)(5)(iv) to (d)(5)(ii).

2. Inventory of Current and Projected Emissions from Mobile Sources

a. Inventory of Current and Projected Emissions from Mobile Sources.

Pursuant to 40 CFR 51.309(d)(5)(i)(A), the State of Utah, in collaboration with the WRAP, assembled a comprehensive statewide inventory of mobile source emissions. This emission inventory showed the year with the lowest level of emissions will be at the end of the SIP planning period in 2018 instead of 2005 as anticipated by the GCVTC. The substantial reduction of projected mobile source emissions from 2003 to 2018 is due to the adoption of new on-road vehicle emission and fuel standards by EPA.

The values shown in the table below cannot be used for conformity determinations under 40 CFR 51 and 40 CFR 93, Subpart A. Subsection 40 CFR 93.102 states that conformity applies to nonattainment and maintenance areas. The visibility provisions of 40 CFR 51.301 - 309 are not health-based standards resulting in nonattainment designations.

Table 8. Mobile Source Inventory for 2003 and 2018

Utah Emissions by Source Category		Sulfur Dioxide (SOx)	Nitrogen Oxide (NOx)	Organic Carbon <2.5 Microns (OC)	Elemental Carbon <2.5 Microns (EC)	Other Fine Mtrls <2.5 Microns (Soils etc) (OFM)	Course Material (Soils, dust) >2.5 & <10 Microns (CM)	Volatile Organic Carbon Gases (VOC)
Mobile Sources- On-Road	1996	1.4	79.6	0.6	0.3	1.4	0.1	63.0
	2018 w/309	0.1	22.2	0.1	0.1	0.3	-	19.7
	% Change	-93%	-72%	-83%	-67%	-79%	-	-69%
Mobile Sources- Non-Road	1996	10.2	52.3	1.2	0.6	2.0	0.2	27.4
	2018 w/309	17.1	38.8	1.0	0.6	1.8	0.2	20.0
	% Change	68%	-26%	-17%	-25%	-10%	0%	-27%
TOTAL MOBILE EMISSIONS IN UTAH	1996	11.6	131.9	1.8	1.1	3.4	0.3	90.4
	2018 w/309	17.2	61.0	1.1	0.7	2.1	0.2	39.7
	% Change	48%	-54%	-39%	-24%	-38%	-33%	-56%

b. Program to assure continuous decline in mobile source emissions.

Pursuant to 40 CFR 51.309(d)(5)(i)(A), the State of Utah commits to monitoring the emissions from mobile sources to assure a continuous decline in emissions as defined in 40 CFR 51.309(b)(6). If Utah determines that a continuous decline in emissions is not being achieved, additional control measures will be reviewed to determine if they are needed to make reasonable progress. If Utah determines such measures are needed, Utah will submit an implementation plan revision to address the identified control measures.

c. Backstop provision to address potential increase in non-road emissions in the event Federal standards are not finalized.

Pursuant to 40 CFR 51.309(d)(5)(i)(B), the State of Utah commits to provide for a SIP revision no later than December 31, 2008, containing long-term strategies necessary to reduce emission of SO₂ from non-road mobile sources consistent with the goal of reasonable progress. The need for a SIP revision will be determined by a consideration of the emission reductions achieved or anticipated to be achieved by Federal standards should those standards addressing fuel sulfur content for non-road engines not be in place.

3. Other GCVTC Strategies for Mobile Sources

Pursuant to 40 CFR 51.309(d)(5)(ii), the State of Utah has reviewed the other mobile source recommendations contained in the GCVTC report. The results of that review are included in Part J of this implementation plan that addresses all recommendation of the GCVTC report, including mobile source recommendations.

G. LONG-TERM STRATEGY FOR FIRE PROGRAMS

1. Regulatory History and Requirements

In its 1996 final report, the GCVTC recognized that past land management practices, including decades of fire suppression, have led to an increase of accumulated forest fuels. Thus, wildfires are becoming larger in size, unnaturally destructive, and more dangerous and costly to control. Fire is a component of most natural ecosystems in the West and must be a component of processes to meet land management, human health and visibility objectives. The GCVTC recognized that prescribed fire and wildfire levels are projected to increase significantly for decades to come, and that programs to minimize emissions and visibility impacts and educate the public should be implemented.

The Regional Haze Rule (40 CFR 51.309(d)(6)) requires documentation that all federal, state and private prescribed fire programs in the state evaluate and address the degree of visibility impairment from smoke in their planning and application; that a statewide inventory and emissions tracking system be established for volatile organic compounds, nitrogen oxides, elemental and organic carbon, and fine particle emissions from fire; that any administrative barriers to the use of alternatives to burning be identified and removed where possible; that enhanced smoke management programs considering visibility as well as health and nuisance objectives be included and that they be based on specific criteria; and that annual emission goals for fire be established in cooperation with states, tribes, federal land managers and private entities to minimize emissions increases from fire to the maximum extent feasible.

The WRAP's effort to document and understand the incidence of fire and its effect on visibility in Class I areas has been extensive and productive. WRAP modeling shows that prescribed fire will continue to affect visibility. See the WRAP TSD Chapter 6 for details.

2. Prescribed Fire Program Evaluation

Pursuant to 40 CFR 51.309(d)(6)(i), the State of Utah has evaluated all federal, state, and private prescribed fire programs in the state, based on the potential to contribute to visibility impairment in the 16 Class I areas of the Colorado Plateau, and how visibility protection from smoke is addressed in planning and operation. The State of Utah relied upon the WRAP report *Assessing Status of Incorporating Smoke Effects into Fire Planning and Operation*²⁰ as a guide for making this evaluation. The State of Utah has also evaluated whether these prescribed fire programs contain the following elements: actions to minimize emissions; evaluation of smoke dispersion; alternatives to fire; public notification; air quality monitoring; surveillance and enforcement; and program

²⁰ All WRAP documents cited in Part G are available in the Utah TSD Supplement.

evaluation. A description of the evaluation that was made in accordance with 40 CFR 51.309(d)(6)(i) follows.

a. Wildlands Fire

The Utah Smoke Management Plan (SMP), revised March 23, 2000, provides operating procedures for federal and state agencies that use prescribed fire, wildfire, and wildland fire on federal, state and private wildlands in Utah. The SMP includes the program elements listed in 40 CFR 51.309(d)(6)(i), with the exception of alternatives to fire. In a letter dated November 8, 1999, the EPA certified the Utah SMP under EPA's April 1998 *Interim Air Quality Policy on Wildland and Prescribed Fires (Policy)*. EPA's Policy also includes the elements that are listed in 40 CFR 51.309(d)(6)(i).

In 2001, the Utah SMP requirements were codified through rulemaking and comprise R307-204 of the Utah Administrative Code. R307-204 applies to all persons using prescribed fire or wildland fire on land they own or manage, including federal, state, and private wildlands. The Utah TSD Supplement includes copies of the Utah SMP.

Under R307-204, Land Managers are required to submit pre-burn information including the location of any Class I areas within 15 miles of the burn, a map depicting the potential impact of the smoke from the burn on any Class I areas, a description of fuels and acres to be burned, emission reduction techniques to be applied, and monitoring of smoke effects to be conducted. In addition, Land Managers are required to submit a more detailed burn plan that includes, at a minimum, information on the fire prescription or conditions under which a prescribed fire may be ignited.

Under R307-204, prescribed fires requiring a burn plan cannot be ignited and wildland fire used for resource benefits cannot be managed before the executive secretary of the Air Quality Board (AQB) approves or conditionally approves the burn request. The burn approval requirement provides for the scheduling of burns to reduce impacts on visibility in Class I areas.

After the burn is completed, the Land Manager is required to submit post-burn information to evaluate the effectiveness of the burn and provide a record of acres treated by the burn. The procedures listed above serve as an evaluation of the degree of visibility impairment from smoke from prescribed fires that are conducted on federal, state, and private wildlands.

Information on the types of management alternatives to fire considered by Land Managers are included in programmatic or long-term management plans. These programmatic plans are developed in accordance with the National Environmental Policy Act (NEPA) and are reviewed by the Division of Air Quality (UDAQ) on an individual basis. Typically, the Land Manager does not evaluate alternatives to fire once the decision has been made to use fire and the subsequent burn plan developed.

b. Agricultural Fire

The WRAP inventory and a survey²¹ conducted by Utah State University Extension indicate that agricultural burning is a very small portion of total emissions in Utah, and also of agricultural burning in the West. See Table 9 below. The USU survey results are included in the Utah TSD Supplement.

Table 9. Agricultural Burning Emissions Comparison

Agricultural Burning Emissions Comparison						
Numbers were obtained from the Emission Inventories Spreadsheets in the						
Technical Support Document provided by the WRAP for Section 309 SIPs.						
These spreadsheets are available at www.wrapair.org .						
		(tons per year)				
	PMC	PM _{2.5}	SO _x	NO _x	VOC	CO
Utah Agricultural Burning	12	212	10	101	216	2,327
Total Ag Burning in WRAP region	1,125	20,901	1,352	10,094	20,310	216,732
*Total Utah emissions from all sources	63,718	85,347	66,796	269,557	172,231	1,685,503
Utah Ag burning as a % of WRAP Ag Total	1.03%	1.01%	0.77%	1.00%	1.06%	1.07%
Utah Ag burning as a % of Utah Total Emissions	0.02%	0.25%	0.02%	0.04%	0.13%	0.14%
*Total Utah emissions were obtained from WRAP spreadsheets by summing Utah's county emissions and then adding total emissions due to Wild Fire, Ag Burning and Rx Fire.						

Emissions from agricultural burning are less than 0.25% of total Utah emissions and therefore do not result in significant impacts on visibility in the 16 Class I areas or on regional haze in general. Since agricultural burning emissions are minimal and half of them occur far from the Colorado Plateau, agricultural land managers are currently not subject to the Utah Enhanced Smoke Management Plan.

(1) *Decline in Agricultural Burning Since 1996.* The USU survey makes clear the decline in agricultural burning--a reduction of 48% statewide--between 1996 and 2002, and documents the reasons for the change. Only 31,999 acres were burned in 2002 out of a total of 8.7 million acres harvested. Of the total acres harvested, only about one million acres is cultivated; the majority of land is rangeland. The survey documents three reasons for the decline in agricultural burning: stubble or residue was sold rather than burned, the stubble or residue was mowed or chopped and worked back into the soil, and livestock were used to graze the stubble or residue. One reason for the change in practices is that the drought that began in 1999 has reduced the available forage for livestock that

²¹ Utah State University Extension, in collaboration with the Utah Farm Bureau Federation. *Agricultural Burning in Utah and the Regional Haze Rule. Logan, Utah. July 2003.*

normally graze native vegetation, thus making straw more valuable as a feed crop. However, the survey concludes that more stubble and residue was being grazed by livestock or tilled into the soil or baled and sold in 2002 than in 1996.

(2) *Emission Reduction Techniques.* Of Utah's 29 counties, there are seven in which no burning occurred in 1996 or 2002 and two more in which there was no burning in 2002. The USU survey documents county-by-county the specific Emission Reduction Techniques commonly in use. Emission reduction techniques are common practice in seventeen of the counties.

(3) *Local Government Control Measures.* Finally, more than half (16,600) of the acres burned are in Box Elder County in the northwestern corner of Utah, nearly 100 miles from any Class I area. Box Elder County has an ordinance in place to regulate when, where and how much burning can take place. A copy of the ordinance is in the Utah TSD Supplement.

(4) *Program Evaluation.* The State of Utah has determined that the appropriate local government controls and voluntary emission reduction techniques are in place and these efforts meet the requirements of 40 CFR 51.309(d)(6)(i).

3. Emission Inventory and Tracking System

a. Wildlands Inventory

Under R307-204, Land Managers are required to submit an emissions inventory for particulate matter. A tracking system has been established to record the required inventory information. Pursuant to 40 CFR 51.309(d)(6)(ii) and R307-204, the emissions inventory and tracking system for fire sources has been revised within the State of Utah to include volatile organic compounds, nitrogen oxides, elemental and organic carbon, and fine particulate.

For consistency, the State of Utah will use the emissions tracking system developed by the WRAP as defined by the WRAP *Fire Tracking System Policy*.²² This policy identifies a process for gathering the essential post-burn activity information necessary to consistently calculate emissions for both man-made or anthropogenic and natural sources of fire and uniformly assess fire impact on regional haze. This policy is the basis for creating a fire emissions inventory for visibility purposes within the State of Utah, using an emission calculation mechanism developed by the WRAP. In addition, fire emission inventory updates will be provided in future progress reports as part of the reasonable progress demonstration specified in 40 CFR 51.309(d)(10)(i). See the Utah SMP in the Utah TSD Supplement for copies of the tracking forms and further information on the emissions inventory and tracking system in the State of Utah.

²² All WRAP documents cited in Part G are available in the Utah TSD Supplement.

b. Agricultural Lands Inventory

To meet the requirements of 40 CFR 51.309(d)(6)(ii), the State of Utah will work collaboratively with the Utah Farm Bureau Federation and Utah State University Extension to develop and implement an inventory and emissions tracking system for agricultural burning. The survey conducted in 2003 by the Utah State University Extension, in collaboration with the Utah Farm Bureau Federation, will be used as a baseline for future emissions tracking activities. Since agricultural burning has been documented in Subsection 2.b above to be a very small proportion of total emissions in Utah and a very small proportion of agricultural burning in the West, the emission tracking activities will be conducted on a periodic basis to determine if any significant changes have been made since the 2003 survey. Results from the periodic emission tracking activities will be provided in future progress reports to EPA, as part of the reasonable progress demonstration specified in 40 CFR 51.309(d)(10)(i).

4. Identification and Removal of Administrative Barriers

During the annual meeting for establishing the Annual Emissions Goal, the UDAQ staff and Land Managers for fire will assess whether administrative barriers to the use of non-burning alternatives exist. If a specific administrative barrier is identified during this annual meeting, UDAQ will investigate how this barrier may be removed, if feasible, and will work collaboratively with the Land Managers to remove the barrier as required by 40 CFR 51.309(d)(6)(iii).

An evaluation of the administrative barriers to the use of the non-burning alternatives, if any, will be included in the formal progress report to EPA every five years as required by 40 CFR 51.309(d)(10)(ii).

In addition, the State of Utah will use two documents prepared by the WRAP for this effort: (1) *Nonburning Alternatives for Vegetation and Fuel Management*, and (2) *Burning Management Alternatives on Agricultural Lands in the Western United States*.

5. Enhanced Smoke Management Program

Pursuant to 40 CFR 51.309(d)(6)(iv), all smoke management programs that operate within Utah are consistent with the WRAP *Enhanced Smoke Management Programs for Visibility Policy*. This policy calls for programs to be based on the criteria of efficiency, economics, law, emission reduction opportunities, land management objectives, and reduction of visibility impacts. The Enhanced Smoke Management Plan (ESMP) is found in the Utah TSD Supplement.

The following is a list of the elements of the Utah ESMP and the revisions made to the Utah SMP and R307-204 in order to meet the requirements of 40 CFR 51.309(d)(6)(iv).

a. Actions to Minimize Fire Emissions

Utah's ESMP focuses on three general approaches that are designed to minimize emissions from prescribed fire and wildland fire use for resource benefits: use of emission reduction techniques, establishing emission goals, and use of existing burn manager qualification programs.

b. Evaluation of Smoke Dispersion

Under the Utah ESMP, the Land Managers will focus on improved weather data for more accurate spot weather forecasts, scheduling of prescribed fires by the executive secretary of the Air Quality Board to minimize cumulative effects of smoke from fires on Class I areas, burner qualification and certification programs, use of the latest modeling programs to assist in the evaluation of dispersion conditions, and use of field level data such as maps showing where smoke is likely to settle.

c. Alternatives to Fire

Under the Utah ESMP, the types of management alternatives used and the acres treated on an annual basis will be tracked using Land Manager databases that are being developed. Land Managers evaluate and will continue to evaluate the use of alternatives to fire in programmatic or long-term management plans, and the ESMP requires Land Managers to provide a summary of the management alternatives that were used in a given year.

d. Public Notification of Burning

Under the Utah ESMP, a one-stop information center will be added to the Utah SMP website to provide a list of upcoming projects as a means to notify the public about prescribed fire or wildland fire projects.

e. Air Quality Monitoring

Under the Utah ESMP, Land Managers will monitor the effects of prescribed fire and wildland fire on visibility in Class I Areas. At a minimum, visual monitoring and documentation of the direction of the smoke plume will be performed. Under R307-204, the executive secretary of the Air Quality Board may direct Land Managers to operate real-time air quality sampling equipment on large fires that are expected to last more than one day, or fires close to Class I areas. Monitoring of smoke impacts on visibility will lead to improved future operations and a better understanding of smoke accumulation problems and solutions. In addition, the Utah ESMP will provide a detailed description of the monitoring equipment that is available and its location within the region.

f. Surveillance and Enforcement

The Utah ESMP builds upon the relationship that was established between the Land Managers and the UDAQ for the development of the Utah SMP. A good working relationship between the Land Managers and UDAQ can significantly reduce the need for

surveillance and enforcement. UDAQ staff conduct site inspections on prescribed fires that are close to Class I areas to verify compliance with the burn plan on an as-needed basis. Reports are generated when site inspections are conducted.

g. Program Evaluation

The UDAQ staff and Land Managers will conduct an annual effectiveness review for the Utah ESMP. A formal progress report will be completed every five years as required by 40 CFR 51.309(d)(10)(ii).

h. Burn Authorization

Under R307-204, since March 2000, Land Managers have been required to submit pre-burn information including the location of any Class I areas within 15 miles of the burn, a burn plan if requested, a map depicting the potential impact of the smoke from the burn on any Class I areas, and a description of fuels and acres to be burned. Prescribed fire requiring a burn plan cannot be ignited before the executive secretary of the Air Quality Board approves or conditionally approves the burn request. See the Utah SMP in the Utah TSD Supplement for more details on the burn authorization requirements.

i. Regional Coordination

Coordination of fire projects is imperative to avoid cumulative smoke impacts in Class I areas. The Utah ESMP is designed to provide for information sharing among the Land Managers, UDAQ, and the public within Utah, as well as in neighboring states.

j. ESMP for Agricultural Burning

The State of Utah has determined that appropriate emission reduction techniques and control measures for agricultural burning are in place in the agricultural community and at the local government level. This satisfies the requirements of 40 CFR 51.309(d)(6)(iv).

6. Annual Emission Goals

Pursuant to 40 CFR 51.309(d)(6)(v), efforts will be made within the State of Utah to minimize emission increases in fire, excluding wildfire, to the maximum extent feasible, through the use of annual emission goals, in accordance with the *WRAP Annual Emission Goals for Fire Policy*. The State of Utah intends to use this policy to quantify the emission reduction techniques that are being used within the state on a project-specific basis to reduce the total amount of emissions increases being generated from areas where prescribed fire is being used. The Utah TSD Supplement describes this process in more detail.

H. ASSESSMENT OF EMISSIONS FROM PAVED AND UNPAVED ROAD DUST

1. Regulatory History and Requirements

The Grand Canyon Visibility Transport Commission, in its 1996 report to EPA,²³ believed that dust emissions from paved and unpaved roads are generally near-field transport issues rather than long-range transport issues, especially with respect to larger coarse materials that settle out of the atmosphere before being transported long distances. However, the GCVTC also recommended additional studies would be necessary to verify this assumption since the state of the science the GCVTC relied upon for characterizing the emissions and transport of dusts from roads was limited, and the projected growth of on-road emissions could contribute to regional haze, based on the projected growth of population and vehicle-miles-traveled.

The Regional Haze Rule (40 CFR 51.309(d)(7)) requires states to assess the impact of dust emissions from paved and unpaved roads on regional haze in the 16 Class I areas located on the Colorado Plateau in the first implementation plans due December 2003. The Western Regional Air Partnership analyzed this issue, including efforts to improve methods for estimating road dust emission inventories as applied to regional scale modeling and characterization of the transport and deposition processes. Results of WRAP modeling work have demonstrated road dust is not a significant contributor to visibility impairment in the 16 Class I areas on the basis of regional transport. Due to this finding, no additional road dust control strategies are needed in the current SIP.

2. State of Utah Long-term Strategy for Road Dust Sources

a. Assessment of Paved and Unpaved Road Dust Emissions.

Pursuant to 40 CFR 51.309(d)(7), an assessment was made by the WRAP of the impact of dust emissions from paved and unpaved roads from transport region states on the 16 Class I areas of the Colorado Plateau. A complete description of this assessment is provided in Chapter 7 of the WRAP Technical Support Document. The State of Utah, in consultation with the WRAP, will track emissions and perform further assessments of road dust impacts on visibility in the 16 GCVTC Class I areas in the progress updates and status reports, and will submit implementation plan revisions as needed to make reasonable progress in the SIP amendments due in 2008, 2013, and 2018.

²³ *Recommendations for Improving Western Vistas*, page 46.

b. Contribution to Visibility Impairment Finding.

Pursuant to 40 CFR 51.309(d)(7) and the results of the assessment of the impact of road dust emissions described above, the State of Utah, in collaboration with other states through the WRAP, determined that road dust emissions are not a significant contributor to regional haze visibility impairment within the Colorado Plateau 16 Class I areas. Based on these findings, no emission management strategies have been identified at this time. The technical and policy foundation for this determination can be found in Chapter 7 of the WRAP TSD.

I. POLLUTION PREVENTION AND RENEWABLE ENERGY PROGRAMS

The Public Advisory Committee of the Grand Canyon Visibility Transport Commission (GCVTC) recognized the importance of pollution prevention as a way to minimize per capita emissions that contribute to visibility impairment from regional haze. Thus, in 1996, the GCVTC recommended that one of the goals of states in the transport region "should be to achieve annual additions in order that renewable energy will comprise 10% of regional power needs by 2005 and 20% by 2015. Progress towards this goal should be evaluated every five years, in conjunction with regular reviews of emissions reductions and progress toward the national visibility goal."²⁴

Section 51.309 of the Regional Haze Rule outlines the information that must be included in each state's first Regional Haze Implementation Plan to address visibility impairment in the 16 Class I areas covered by the Commission's Report. By meeting these requirements, Utah can address visibility in all of its Class I areas. Section 51.309(d)(8) of the Regional Haze Rule specifies the air pollution prevention requirements eligible States must meet and outlines the information each State must include in its Regional Haze Implementation Plan to address the use of renewable energy and energy efficiency measures to reduce the emissions causing regional haze. Table 10 summarizes the information requirements contained in Section 51.309(d)(8).

Table 10. Summary of Information Requirement for Pollution Prevention

Citation	Information Item
309(d)(8)(i)	Item 1. An initial summary of all air pollution prevention programs currently in place.
	Item 2. An inventory of all renewable energy capacity and production in use or planned as of 2002 (expressed in megawatts and megawatt-hours).
	Item 3. Total energy generation capacity and production for the state.
	Item 4. Percent of total energy generation capacity and production that is derived from renewable energy.
	Item 5. The state's anticipated contribution toward the 10/20 goals (based on the programs and policies each state relies on to achieve its renewable goals).
309(d)(8)(ii)	Item 6. Programs providing incentives to reward efforts that go beyond compliance and/or achieve early compliance with air pollution related requirements.
309(d)(8)(iii)	Item 7. Programs to preserve and expand energy conservation efforts.

²⁴ *Recommendations for Improving Western Vistas*, page 30.

309(d)(8)(iv)	Item 8. An identification of specific areas where renewable energy has the potential to supply power where it is now lacking and where renewable energy is most cost-effective.
309(d)(8)(v)	Item 9. Projections of the short- and long-term emissions reductions, visibility improvements, cost savings, and secondary benefits associated with the renewable energy goals, energy efficiency and air pollution prevention activities.
309(d)(8)(vi)	Item 10. A description of the programs relied on to achieve the state's contribution toward the 10/20 goals and a demonstration of the progress made toward achievement of the renewable energy goals in the years 2003, 2008, 2013, and 2018. This description must include documentation of the potential for renewable energy resources, the percentage of renewable energy associated with new power generation projects implemented or planned and the renewable energy generation capacity and production.

The Western Regional Air Partnership (WRAP) was established in 1997 as the successor organization to the Grand Canyon Visibility Transport Commission. The WRAP was created by western states and tribes to coordinate and oversee the implementation of recommendations made by the GCVTC and to “identify regional or common air management issues, develop and implement strategies to address these issues, and formulate and advance western regional policy positions on air quality.” The WRAP develops policies, strategies and technical tools through an inclusive stakeholder-based process that includes state air agencies, the U.S. Environmental Protection Agency (EPA), tribes, federal and state land management agencies, local government, industry, utilities, environmental groups, academia and other interested parties.

The Air Pollution Prevention Forum (the Forum) was created in September, 1998 by the WRAP's Initiatives Oversight Committee (IOC) and charged to “recommend legislative actions, economic incentives and regulatory policies states can adopt to meet the 10/20 renewable energy goal and increase the use of energy efficiency technologies in the Grand Canyon Visibility Transport region.” Stakeholders and regulators from the State of Utah were actively involved in the work of the Forum.

The objective of the Forum and its 25 members has been to provide the states and tribes in the WRAP region with the policy and analytical framework needed to respond to the requirements of 40 CFR 51.309(d)(8). To accomplish this purpose the Forum's work plan called for the Forum to:

- Examine barriers restricting the penetration of renewable energy, energy efficient technologies, and adoption of energy efficient practices in the Transport Region;
- Identify and evaluate economic incentives, legislative actions, and regulatory policies that will increase investments in renewable energy and energy efficiency, including actions currently underway in the Grand Canyon Visibility Transport Region; and

- Recommend market-based incentives and public policies that will support increased investment in renewable energy within the Grand Canyon Visibility Transport Region and improve the efficiency of the region's energy production and end-use sectors.

The Forum developed recommendations over a three-year period through a stakeholder-based consensus process supported, in part, by nationally recognized renewable energy and energy efficiency experts, including the National Renewable Energy Laboratory. The Forum and workgroups held more than 11 meetings and workshops to examine barriers and identify policies that would lead to increased investment in renewable energy and energy efficiency in the Grand Canyon Visibility Transport Region. The Forum also commissioned ICF Consulting Group to analyze the potential emissions reductions, energy cost savings, and secondary environmental and economic benefits of meeting the Grand Canyon Visibility Transport Commission's 10/20 goal and implementing a suite of cost-effective energy efficiency programs and policies the Forum identified as "best practices" for the region.

Following the findings of the Grand Canyon Visibility Transport Commission and the Air Pollution Prevention Forum, the Western Regional Air Partnership (WRAP) found that energy efficiency and renewable energy can be effective tools to reduce regional haze and can reduce emissions, improve visibility, reduce energy costs and provide secondary environmental and economic benefits to the region. The WRAP also concluded that implementing both renewable energy and energy efficiency program and policy measures together will yield larger emissions benefits than either energy efficiency or renewable energy measures would alone. The U.S. Environmental Protection Agency made similar presumptions in promulgating Section 309(d)(8) of the Regional Haze Rule.

The inclusion of energy efficiency and renewable energy programs in the State Implementation Plan and estimated emission reductions and impacts from them does not cause such programs and estimates to become mandatory and/or federally enforceable. These programs are voluntary state and local programs that were never intended to be federally enforceable.²⁵ The WRAP has explicitly expressed its expectation that these programs will be implemented consistent with local economic, regulatory, and political conditions while protecting cultural resources and values. As such, these programs may be modified, changed, expanded, redirected or eliminated and new programs may be adopted and implemented without seeking approval from the federal government. The projected emission reductions are estimates only. It is expected that these programs and their associated emissions impacts will change over time without requiring a SIP revision.

²⁵ The GCVTC goal is 10 percent of generation from renewable resources in 2005 and 20 percent in 2015. With respect to the requirements of Section 309(d)(8), achieving the 10/20 goal is not mandatory or "enforceable." This section of the rule simply establishes an "enforceable" requirement for States "to assess progress toward a goal established by the GCVTC with respect to renewable energy". To the extent they are not able meet the goal, States are required to provide an explanation of why the goals cannot be met. See *Federal Register*, Vol. 64, No. 126, page 35754, July 1, 1999. *Regional Haze Regulations Final Rule*.

Utah will, as required, report its progress toward meeting the regional 10/20 renewable energy goals in the periodic SIP reviews required under 40 CFR 51.309(d)(10).

1. Description of Existing Pollution Prevention Programs in Utah

Utah's pollution prevention programs focus on improving the efficiency of energy usage by end-use consumers and increasing supplies of electrical power generated from renewable sources for Utah customers. Detailed descriptions of them can be found in the Utah TSD Supplement.

2. Inventory of Renewable Energy Generation Capacity and Production in 2002

The State of Utah has based its inventory of existing installed renewable energy generation capacity on publicly available reports published by federal government agencies responsible for gathering energy information and/or licensing power plants. These sources maintain reliable data on larger renewable generating plant capacity and electric energy production. To supplement this information, the Utah Energy Office conducted surveys to estimate the capacity and electric energy production from medium, 25 kW to 10 MW, and small, less than 25 kW, renewable power generation systems installed within Utah that would not have been included in regularly maintained federal energy databases.

The State of Utah generates a substantial amount of power from hydroelectric sources. None of this hydroelectric capacity has been certified to meet the Low-Impact Hydropower Institute criteria that would be necessary for hydroelectric generation to be considered "renewable energy" under the definition endorsed by the Air Pollution Prevention Forum of the WRAP. As a consequence no hydroelectric power or capacity has been included in the inventory of existing Utah renewable energy generation. Some existing hydroelectric plants in Utah may be certified in the future. If certified, they will be included as contributors toward meeting the regional renewable energy goals in future renewable energy inventories reported in the revisions to the Utah Regional Haze Implementation Plan.

Total renewable power generating capacity in Utah at the end of 2002, excluding all hydroelectric generation, was 42.136 Megawatts. Table 11, prepared by the Utah Energy Office, summarizes renewable energy generation capacity installed within Utah by 2002.

Table 11. Utah Renewable Electric Power Industry Capacity (Megawatts)

Year	1999	2000	2001	2002
Utility Hydro	275	275	275	275
Non-Utility Hydro	10.496	10.496		10.496
Hydro Small Survey	0.037	0.046	0.055	0.059
Total Hydroelectric*	285.533	285.542	285.551	285.555
Geo Blundell (EIA)	26.1	26.1	26.1	26.1
Geo Cove Fort	13.7	13.7	13.7	13.7
Total Geothermal	39.8	39.8	39.8	39.8
Solar/PV Small Survey	0.013	0.016	0.018	0.018
Solar/PV Medium Survey	0.220	0.220	0.220	0.220
Total Solar/PV	0.233	0.236	0.238	0.238
Wind Small Survey	0.134	0.176	0.220	0.240
Wind Medium Survey	0.033	0.258	0.258	0.258
Total Wind	0.167	0.434	0.478	0.498
MSW Landfill Gas	1.6	1.6	1.6	1.6
Wood and Wood Waste	na	na	na	na
Other Waste	na	na	na	na
Total Renewable Capacity	327.333	327.612	327.667	327.691
Total w/o Hydro	41.800	42.070	42.116	42.136

*No Utah hydroelectric sites are currently certified as low-impact hydro by the Low Impact Hydropower Institute (LIHI).

Sources: "Inventory of Electric Utility Power Plants in the U.S. 1998, 1999, and 2000"; "Inventory of Nonutility Electric Power Plants in the U.S. 1998, 1999, and 2000"; FERC "Hydroelectric Projects Under Commission License" and "Hydroelectric Projects Exempted from Licensing Requirements," NREL REPiS; Utah Energy Office Small and Large Renewable Plant Surveys.

Table 12, prepared by the Utah Energy Office, summarizes electric energy production from renewable generation sources in Utah over the past four years. Electric energy production from renewable sources over the last four years averaged 200,995 MWh annually. In 2002, 223,664 MWh of power were generated from renewable sources located within Utah.

Table 12. Utah Renewable Electric Power Industry Generation (Megawatt-hours)

Year	1999	2000	2001	2002
Utility and Non-Utility Hydro	1,255,142	746,125	500,203	484,357
Hydro Small Survey Generation*	107	133	159	170
Total Hydroelectric**	1,255,249	746,258	500,362	484,527
Total Geothermal	185,926	186,461	185,989	211,565
Solar/PV Small Survey Generation	23	29	32	32
Solar/PV Medium Survey Generation	385	385	385	385
Total Solar/PV	408	414	417	417
Wind Small Survey Generation	235	308	385	420
Wind Medium Survey Generation	58	452	452	452
Total Wind	293	760	837	872
MSW Landfill Gas	8,169	9,110	1,534	10,810
Wood and Wood Waste	na	na	na	na
Other Waste	na	na	na	na
Total Renewable Generation	1,450,044	943,003	689,139	708,191
Total w/o Hydro	194,796	196,745	188,778	223,664

*All medium survey hydro plants were included in EIA Utility and Non-Utility Data

**No Utah hydroelectric sites are currently certified as low-impact hydro by the Low Impact Hydropower Institute (LIHI)

Sources: EIA, Form EIA-759, "Monthly Power Plant Report"; Form EIA-867, "Annual Nonutility Power Producer Report"; Form EIA-860B, "Annual Electric Generator Report - Nonutility"; Form EIA-906 Database, "Monthly Utility Power Plant Data" and "Monthly Nonutility Power Plant Data"; and Utah Energy Office Small and Medium Renewable Plant Surveys

3. Inventory of Total Utah Capacity and Production in 2002

By comparison, total installed generation capacity within Utah in 2002 was 5,485 MW. Non-hydroelectric renewable energy generation capacity represented 0.77 percent of the total installed capacity. Table 13, prepared by the Utah Energy Office, summarizes the installed generation capacity in Utah.

Table 13. Utah Capacity by Source (Electric Power Annual). (Megawatts)

Year	1999	2000	2001	2002
Coal	4,705	4,781	4,781	4,781
Petroleum	54	47	47	47
Natural Gas	320	327	327	327
Petroleum/Natural Gas or Other Gas (Combined)	50	2	2	2
Hydroelectric	286	286	286	286
Other Renewable	42	42	42	42
Total	5,456	5,485	5,485	5,485
% Renewable	5.999%	5.973%	5.974%	5.975%
% Non-Hydro Renewable	0.766%	0.767%	0.768%	0.768%

Sources: "Inventory of Electric Utility Power Plants in the U.S. 1998, 1999, and 2000"; "Inventory of Nonutility Electric Power Plants in the U.S. 1998, 1999, and 2000"; and Utah Energy Office Estimates for Hydroelectric and Other Renewables.

4. Percent of Total Energy Generation Capacity and Production Derived from Renewable Energy

Power plants located in Utah produced 36,496,500 MW-h on average over the past four years. In 2002, Utah generators produced 36,640,000 MW-h of electric energy. Renewable power contributed 0.61 percent of this total. Table 14, prepared by the Utah Energy Office, summarizes electric energy production from all generation sources in Utah over the past four years.

Table 14. Utah Net Generation by Source, 1999-2002 (Thousand Megawatt-hours)

Year	1999	2000	2001	2002
Coal	34,695	34,477	33,678	34,348
Petroleum	31	57	58	31
Natural Gas	668	1,146	1,454	763
Hydroelectric	1,255	746	500	485
Other Renewable	195	197	189	224
Total	36,844	36,623	35,879	36,640
% Renewable	3.94%	2.57%	1.92%	1.93%
% Non-Hydro Renewable	0.53%	0.54%	0.53%	0.61%

Sources: Form EIA-906 Database, "Monthly Utility Power Plant Data" and "Monthly Nonutility Power Plant Data"; and Utah Energy Office Small and Medium Renewable Plant Surveys.

Updated: 04/10/03

5. Anticipated Contribution Toward Meeting the 10/20 Renewable Energy Goals

Utah has relied on the Air Pollution Prevention Forum's guidance to interpret this provision. The Air Pollution Prevention Forum determined that the proper metric for measuring progress toward the regional goals is the amount of renewable energy Utahns bring on-line through their programs and incentives to serve indigenous loads. The Air Pollution Prevention Forum chose this metric to foster economic efficiency in the development of renewable energy within the region. The choice of this metric allows states to take credit for renewable energy generated anywhere within the interconnected grid so long as that State relies on the renewable energy facility to serve its loads, one of its renewable energy programs supports the development and/or its consumers are paying for the power output. Table 15 prepared by the Utah Energy Office summarizes Utah's consumption of power from renewable sources compared to all generating sources over the past three years .

Table 15. Utah Consumption of Renewable Power; 2000-2002 (Gigawatt-hours)

	2000	2001	2002	Average
Total Non-Hydro RE Off-Grid/Small-Scale	1.174	1.255	1.290	1.239
Blue Sky	0.673	3.799	7.810	4.094
Other Green Pricing	-	-	-	-
Non-Hydro RE Pcorp	87.533	99.900	112.439	99.957
Non-Hydro RE Non-Pcorp	34.618	33.247	29.681	32.515
Non-Hydro RE Non-Utility	9.110	1.534	10.810	7.151
Total Non-Hydro RE Consumption	133.108	139.734	162.030	144.957
Total Electricity Consumption	23,198.084	23,390.443	23,384.241	23,324.256
% Non-Hydro RE	0.57%	0.60%	0.69%	0.62%

Sources: Utah Small and Medium Renewable Energy Surveys; Form EIA-906 (utility and non-utility) and EIA-826 Databases; Form EIA-759; Form EIA-867; Form EIA-860B; ScottishPower Environmental Performance Report 2001/2002.

a. States' Contributions to the Regional Renewable Energy Generation Goal

Because only five of the nine transport region states plan to file state implementation plans under 40 CFR 51.309, it is not possible to allocate shares of the renewable energy generation goals to individual states. Even if an allocation of the goal to individual states were possible, any forecast of program performance would be uncertain. The states submitting implementation plans under Section 309 do not know if the nine-state

transport region will achieve the regional goals of 10 percent of electric energy generation from renewable sources by 2003 and 20 percent by 2015.

Although only five states may submit plans under Section 309, efforts by other states in the transport region will contribute to achieving the regional goals. In addition to the efforts expected from the five states planning to address regional haze under Section 309, California and Nevada are aggressively pursuing renewable resources.

Nevada has adopted a renewable portfolio standard (RPS) requiring utilities in the state to obtain 15 percent of their electricity from renewable resources by 2004.

California, representing 48 percent of electricity sales in the nine-state transport region during 2000, recently enacted a more aggressive RPS than its earlier standard. The statutory requirements governing California's expanded RPS are contained in Senate Bill 1078 and Senate Bill 1038, which took effect on January 1, 2003, and are codified in Public Utilities Code (PUC) sections 399.11 through 399.15, and sections 381, 383.5, and 445.

SB 1078 establishes an RPS program that requires retail electricity sellers, such as investor-owned utilities, to increase the renewable content of their electricity deliveries by one percent per year over a baseline level to be determined by the California PUC. Retail sellers must meet a target of 20 percent renewable content in their electricity portfolio by December 31, 2017. SB 1038 revises the structure and funding allocation for the California Energy Commission's Renewable Energy Program, linking payments it makes to new renewable electricity generating facilities to the RPS, with the goal of increasing the amount of renewable generation in California.

The states filing plans under Section 309 will report on regional progress toward the renewable energy goals for the nine-state transport region in their 2008 submittals.

b. Utah's Anticipated Contribution Toward Meeting the 10/20 Renewable Energy Goals

Utah has relied on the Air Pollution Prevention Forum's guidance to interpret this provision. The Forum determined that the proper metric for measuring progress toward the regional goals is the amount of renewable energy that Utahns bring on line through their programs and incentives to serve indigenous loads. The Forum chose this metric to foster economic efficiency in the development of renewable energy within the region. The choice of this metric allows each state to take credit for renewable energy generated anywhere within the interconnected grid so long as that state relies on the renewable energy facility to serve its loads, one of its renewable energy programs supports the development, and/or its consumers are paying for the power output. Table 14 prepared by the Utah Energy Office summarizes Utah's consumption of power from renewable sources compared to all generating sources over the past three years.

The Forum estimated that approximately 20 GW or 20,000 MW of new renewable energy generating capacity would need to be added to the interconnected grid by 2018 for the region to meet its goals of producing 10% of its power from renewable sources by 2005 and 20% by 2015. Using information from the Energy Information Administration and the Western Electricity Coordinating Council (WECC), the Utah Energy Office estimates that Utah's peak summer electricity demand is about 2.8% of the overall WECC peak summer electricity demand. WECC includes all of the states comprising the Grand Canyon Visibility Transport Region. If Utah consumers were allocated a portion of the 20,000MW required to meet the regional 10/20 goals based on the proportion of peak summer electricity demand they now represent, Utah would need to contribute 560 MW of new renewable generation capacity toward meeting the goals. Utah estimates that it will contribute about 550 MW of new renewable generating capacity through its various programs to meet the regional goals by 2013. At this time, there is not enough information available to reasonably estimate what additional renewable generating capacity Utah will bring on line to serve indigenous loads from 2013 to 2018. The WRAP's Air Pollution Prevention Forum and Utah both expect wind power production to provide most of the new capacity. In addition to reporting on its progress toward meeting the regional renewable energy goals, Utah will update and revise its current estimate of its contribution to the goals when it makes its 2008 submittal.

6. State of Utah Programs to Encourage Early Compliance

a. Western Backstop SO₂ Trading Program Early Reduction Credits.

As further described in Part E.3.a(1)(c) of the stationary source provisions of this plan, industrial sources of SO₂ subject to the trading program which, upon verification by the State, reduce emissions to levels below their floor amount prior to the program trigger date shall receive additional emission allowances. Such allowances may be used by the source for compliance purposes or may be sold to other parties, hence providing an incentive for sources to go beyond compliance (i.e., their floor) or to achieve early compliance (i.e., reductions prior to the program trigger date).

b. Western Backstop SO₂ Trading Program Renewable Energy Credits.

As further described in Part E.3.a(1)(c) of the stationary source provisions of this plan, allowances shall be provided to the owners of renewable energy facilities installed since October 1, 2000. Such allowances will hold a market value and therefore provide an incentive for power suppliers to invest in renewable energy facilities with zero or very low air pollutant emissions.

7. Summary of Utah Programs to Expand Energy Conservation

Pursuant to 40 CFR 51.309(d)(8)(iii), Table 16 lists programs that are offered in Utah to preserve and expand existing energy conservation efforts. Detailed information about these programs is provided in the Utah TSD Supplement.

Table 16. Programs to Preserve and Expand Energy Conservation Efforts

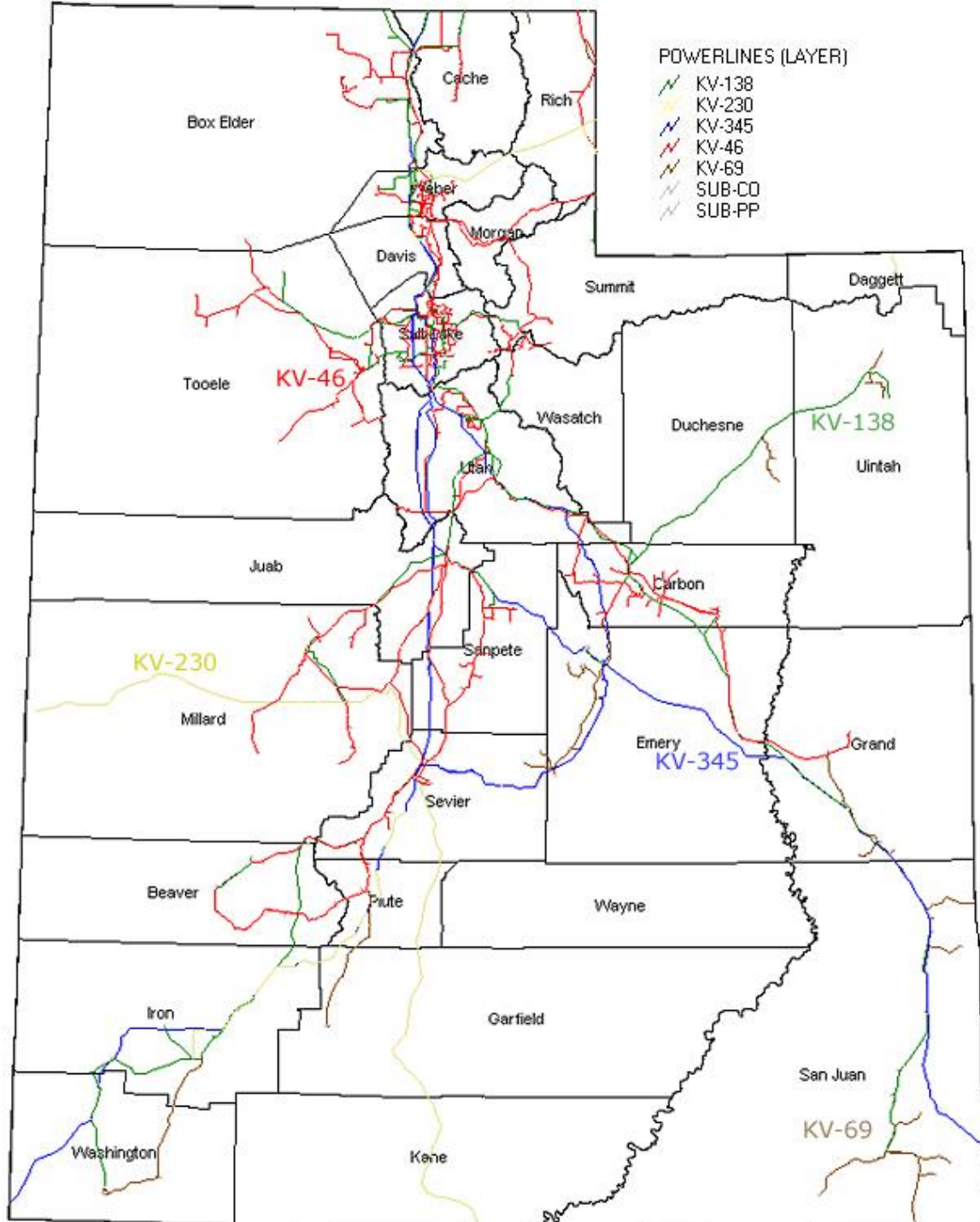
PROGRAM TYPE	INDIVIDUAL PROGRAMS
Utility Integrated Resource Planning	PacifiCorp Integrated Resource Planning – Demand Side Management
	UAMPS Integrated Resource Planning – Demand Side Management
Residential Energy Efficiency	Low-income Weatherization Program
	Residential Energy Efficiency Program
Commercial and Industrial Energy Efficiency	Commercial and Industrial Energy Efficiency Demonstration Program
	Industries of the Future Program
Schools and Public Buildings Energy Efficiency	State Buildings Energy Efficiency Program
	Schools and Public Buildings Energy Efficiency Program
	Salt Lake City Climate Action Plan Program
	Salt Lake Airport Electricity Conservation Program
Technical Assistance	Energy Education in Schools Program
	“PowerForward” Program

8. Areas Where Power Is Lacking and Renewable Sources Can Supply It

Supplying power from renewable sources where it is now lacking is linked fundamentally to whether or not line extensions are affordable compared to off-grid renewable power applications. Most populated areas of Utah and their associated electrical loads are being served from the interconnected transmission and distribution system. There are very limited opportunities to supply power from renewable sources to areas without existing service. Where off-grid power production is appropriate, it probably will be solar generation and will offset on-site diesel generation. In areas without electrical service, the cost-effectiveness of renewable energy generation can only be determined within the context of site-specific resource availability, the conversion technology and its capital costs, alternative power generation costs, fuel prices and volatility, proximity to grid-connected distribution lines, the cost of line extensions, and other relevant variables. Utilities’ line extension policies may also encourage or dissuade off-grid renewable power development. In general, small loads located more than 3 miles from the transmission and distribution grid have the highest potential for being served cost effectively by on-site renewable power generation. A map of Utah’s transmission system

is shown below. It can be compared to the maps depicting Utah's renewable energy resource distribution (Figures 11 - 14) to get a rudimentary sense for the areas where renewable power might be used to serve loads that do not have power today.

Figure 4. Utah's Transmission and Distribution Network.



9. Projections of Emissions Reductions, Visibility Improvements, Cost Savings and Secondary Benefits from Pollution Prevention and EERE Measures

a. Regional Approach to Analyses

The goal of serving 10 percent of “the regional power needs” from renewable generation sources by 2005 and 20 percent by 2015 is a regional one. The goal was not apportioned to the individual states comprising the Grand Canyon Visibility Transport Region. Instead, each state has been required to take steps that contribute to achieving an overarching regional outcome. This approach appropriately reflects the nature of the western electricity grid. Load growth in one area of the western electricity system is regularly met by generation additions in another, geographically separated location within the interconnected western system. This fosters economic efficiency and helps to keep electricity rates for retail customers low. While it may be feasible to forecast where load growth is most likely to occur within the western region, it is not realistic to suggest anyone can predict where and when new generation additions from renewable or any other sources might come onto the interconnected system to serve it.

Because they depend largely on how the interconnected electricity system expands and may be developed, the emissions reductions, visibility improvements, cost savings, and secondary benefits associated with meeting the regional renewable energy goals, preserving and expanding energy conservation efforts and operating pollution prevention programs cannot be rationally tied prospectively to any particular state. Further, these derived benefits are small. The pollution prevention recommendations of the GCVTC were part of an overall strategy for reducing haze causing emissions across the entire geographic region affecting the visibility at Class I areas on the Colorado plateau. All benefits whether environmental or economic were intended to be accrued to the region. Attempting to apportion them to individual states is not reasonable and could be misleading.

The WRAP analyzed the emissions reductions, cost savings, and secondary benefits the Transport region, all nine states and the tribal lands within them, could expect from implementing the pollution prevention recommendations of the Grand Canyon Visibility Transport Commission. The analysis focused on stationary sources, including electricity generation and industrial steam production plants and refineries, smelters and other facilities that emit SO₂ from processing. The assessment assumed every state would participate to implement the pollution prevention recommendations. Five of the Transport region states are preparing Regional Haze Implementation Plans under Section 309. Two others, California and Nevada, have adopted aggressive sets of policies including Renewable Portfolio Standards and System Benefits Charges to promote the development of new renewable power plants before 2018. Because these states are all taking steps to achieve the regional 10/20 goal and represent an overwhelming portion of the load within the Transport region, the assumptions used by WRAP to model emission reductions, cost savings, and secondary benefits should be representative. Utah has relied

on their analysis²⁶ to prepare this section of the Utah Regional Haze Implementation Plan. Additional modeling using different or state-specific assumptions seems unlikely to yield any significant, substantive improvement over the projections the WRAP has developed.

b. Projections of Emissions Reductions, Visibility Improvements, Cost Savings and Secondary Benefits from Pollution Prevention and EERE Measures

(1) Modeling Method and Assumptions.

The Air Pollution Prevention Forum of the WRAP developed a three-phase analytical framework to assess the potential emissions reductions, cost savings and secondary regional economic impacts of implementing the 10/20 goals and preserving and expanding energy conservation efforts within the Transport region. These included: (1) assumptions and scenario development, (2) modeling of the electric, steam and process source sectors, and (3) modeling of the secondary regional economic impacts.

The Air Pollution Prevention Forum developed two types of scenarios to examine the emissions reductions, cost savings and secondary regional economic impacts of meeting the 10/20 goals and preserving and expanding energy conservation efforts. The first was a Business-As-Usual scenario that characterized how the future might unfold with the proposed, “backstop,” regional SO₂ trading program but without any policy measures designed to achieve the 10/20 goals or enhance energy efficiency. The second set of scenarios reflected a future with the regional SO₂ trading program and policy drivers designed to meet the 10/20 goals or preserve and expand energy conservation efforts, or both. Assessments of emissions reductions, cost savings and secondary regional economic impacts were estimated by analyzing the differences between the policy scenarios compared to the Business-As-Usual scenario.

(2) Forecast Power Supply Changes.

Achieving the 10/20 goals and implementing the Air Pollution Prevention Forum energy efficiency recommendations will stimulate significant renewable energy capacity additions, 20,000 MW by 2018. Figure 9 summarizes the growth in renewable energy capacity spawned by meeting the 10/20 goals. Figure 5 contrasts the generation mix in 2018 between the Business-As-Usual and 10/20 goal policy scenario.

²⁶ Prepared for the Western Regional Air Partnership Air Pollution Prevention Forum. *Economic Assessment of Implementing the 10/20 Goals and Energy Efficiency Recommendations*. Draft Report of October, 2002;

Figure 5. Forecast Renewable Energy Capacity Additions to Meet 10/20 Goals.

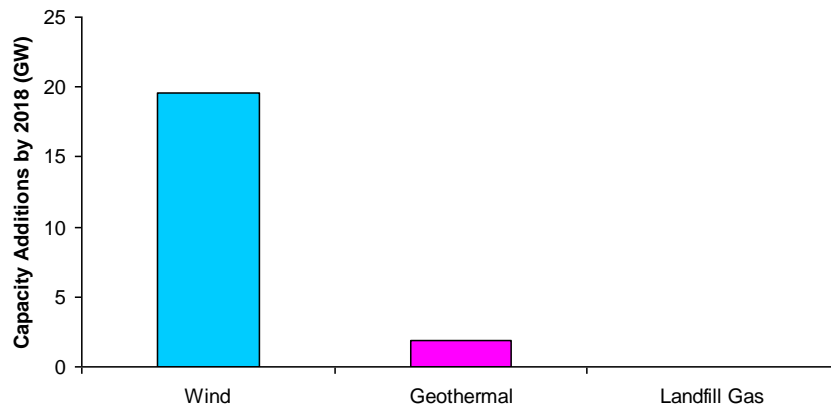
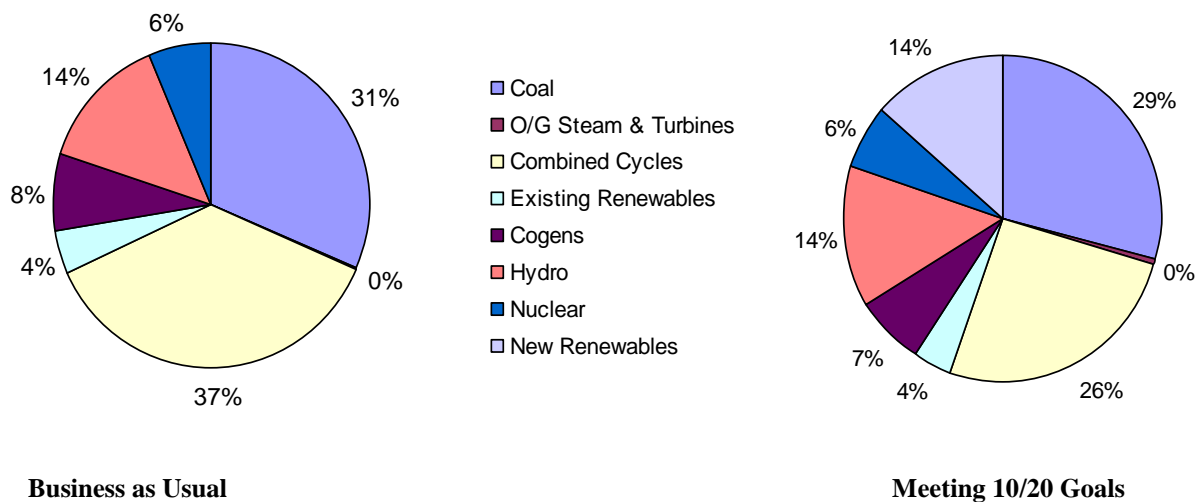


Figure 6. Generation Mix in 2018: Business-As-Usual and Meeting 10/20 Goals.



As illustrated in Figures 5 and 6, wind power dominates the growth in new renewable energy generation capacity and the increased use of renewable energy displaces new gas-fired generation. While these results illustrate only the impact from meeting the 10/20 renewable generation goal, similar impacts occur with increased energy efficiency. The key point illustrated by the projected change in the mix of generation capacity from meeting the 10/20 goal and preserving and expanding energy conservation efforts is that new renewable power generation and energy conservation compete against new conventional capacity additions without significantly affecting existing electricity generating sources.

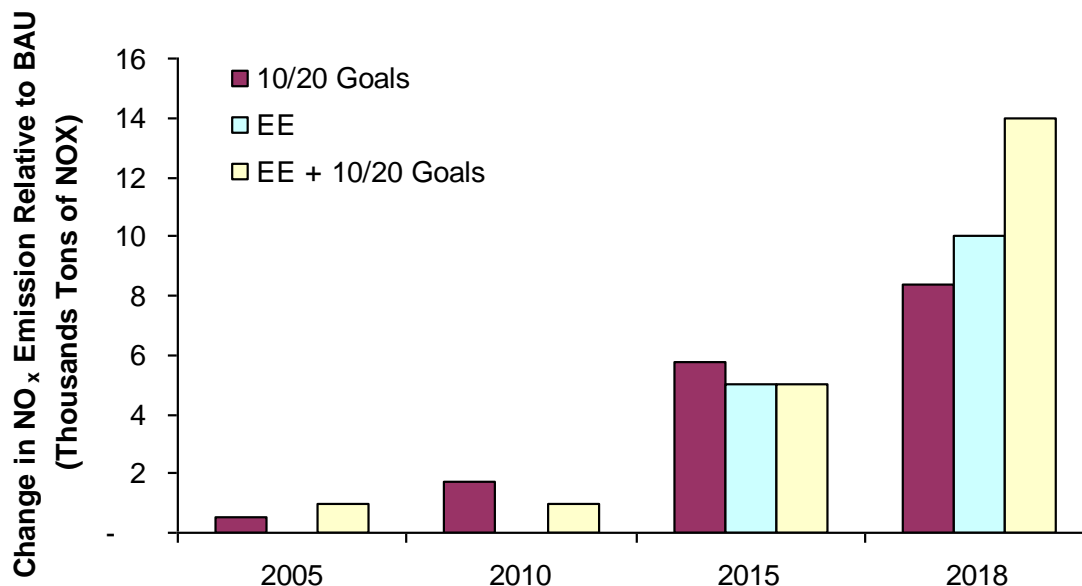
(3) Emissions Reductions.

The analyses completed by the WRAP indicate that meeting the 10/20 renewable energy goal and implementing the recommendations developed by the Air Pollution Prevention

Forum as “best practices” to preserve and expand energy conservation can serve as cost-effective air pollution prevention strategies because they provide emissions reductions at modest costs or with some savings.

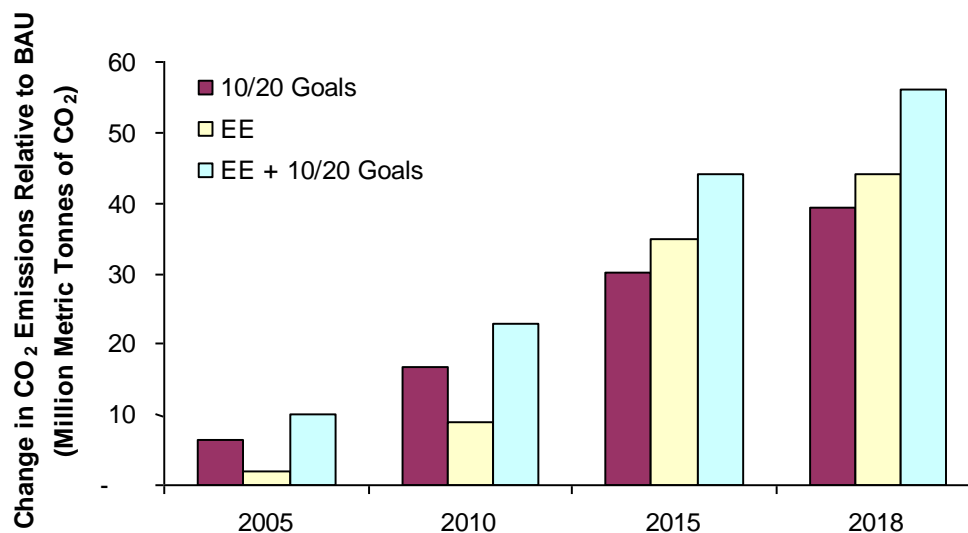
The fact that renewable energy capacity additions and energy efficiency are likely to compete against generation from new gas-fired facilities affects the projected emissions reductions from meeting the 10/20 renewable energy goal and implementing more aggressive energy efficiency programs. As illustrated in Figure 7, the WRAP estimates the potential reduction in NO_x emissions from meeting the 10/20 renewable energy goal and preserving and expanding energy conservation efforts will likely be between 8,000 tons and 14,000 tons, 1 percent to 2 percent relative to Business-As-Usual. In Figure 11, the bar labeled “10/20 goals” represents NO_x emissions reductions from a scenario in which the 10/20 goal is met, the one marked “EE” represents NO_x emissions reductions from a scenario in which the Air Pollution Prevention Forum energy efficiency recommendations are implemented and the one labeled “EE + 10/20 goals” represents NO_x emissions reductions from the policy scenario in which both the 10/20 goal and the energy efficiency recommendations have been fully accomplished.

Figure 7. Potential NO_x Emissions Reductions from Meeting the 10/20 Goal and Implementing Energy Efficiency Recommendations.



Achieving the 10/20 renewable energy goal and pursuing energy efficiency aggressively also leads to reductions in CO₂ emissions through the displacement of new fossil fuel generation. As illustrated in Figure 8, CO₂ emissions reductions in 2018 from meeting the 10/20 goal and preserving and expanding energy conservation efforts have been projected to range between 40 million and 55 million metric tonnes, 10 percent to 14 percent relative to Business-As-Usual.

Figure 8. Potential CO₂ Emission Reductions From Meeting the 10/20 Goal and EE.



The WRAP modeling suggests accomplishing the 10/20 renewable energy goal and preserving and expanding energy conservation efforts do not reduce SO₂ emissions because the regional SO₂ trading program proposed under the Annex is the controlling factor in reducing SO₂ emissions. Since the trading program creates a monetary value for emissions reductions, any potential for emissions reductions is fully offset by increases in SO₂ emissions from sources affected by the trading program. In other words, SO₂ emissions in 2013 and 2018 will reflect the emissions caps specified by the Annex. However, meeting the 10/20 renewable energy goal and preserving and expanding energy conservation efforts could decrease the cost of the SO₂ trading program by as much as \$7 million in 2018, about 10 percent of its projected cost,²⁷ and could displace 1,200 MW to 1,700 MW of new scrubber capacity by 2018.

(4) *Visibility Improvements.*

Projections of visibility improvements for the 16 Class I areas on the Colorado Plateau are provided in Tables 22 and 23 found in Part K. These projections include the

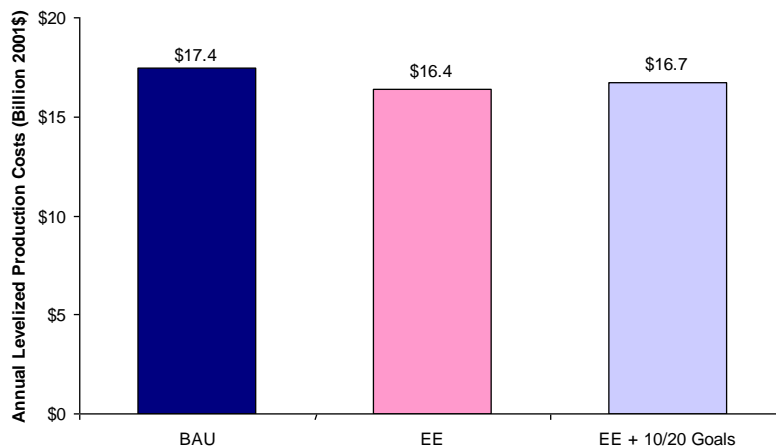
²⁷ *Economic Assessment of Implementing the 10/20 Goals and Energy Efficiency Recommendations*, page 36.

combined effects of all measures in this SIP, including air pollution prevention programs. Although emission reductions and visibility improvements from air pollution prevention programs are expected at some level, they were not explicitly calculated because the resolution of the regional air quality modeling system is not currently sufficient to show any significant visibility changes resulting from the marginal nitrogen oxide emission reductions described above for air pollution prevention programs.

(5) *Cost Savings and Secondary Regional Economic Impacts.*

Achieving the 10/20 renewable energy goal and implementing the Air Pollution Prevention Forum efficiency recommendations could be done for a modest production cost increase or with some financial savings. In particular, preserving and expanding energy conservation efforts could yield net, levelized annual production costs²⁸ savings of \$750 million to \$1 billion, 4 percent to 7 percent relative to Business-As-Use. These net savings reflect the cost of implementing the energy efficiency recommendations, the avoided investment costs for transmission and distribution system upgrades, and the reductions in electricity and steam production costs resulting from lower electricity demand. Figure 9 compares the production costs estimated for Business-As-Usual and those resulting from taking recommended steps to preserve and expand energy conservation efforts across the transport region.

Figure 9. Annual Levelized Production Costs for Business-As-Usual and Efficiency.

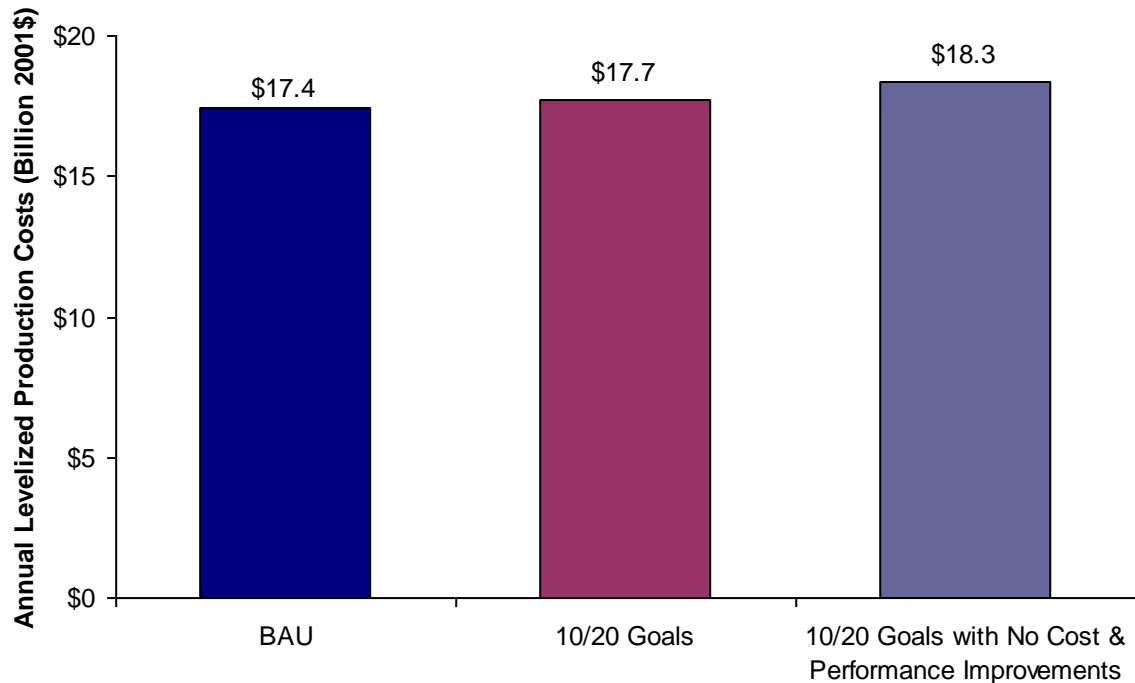


Accomplishing the 10/20 renewable energy goal by itself will increase annual levelized production costs modestly. Electricity production costs could rise between \$300 million and \$900 million, 2 percent to 5 percent compared to Business-As-Usual. This increase is largely driven by the capital investments in new renewable energy generation capacity and is offset by production cost savings from displaced fossil fuel generation. Figure 10 compares the annual levelized production costs associated with Business-As-Usual and

²⁸ Annual levelized production costs reflect the capital, fuel and operation and maintenance expenditures associated with the production of electricity and industrial steam levelized over the years 2005 – 2022. These modeled production costs do not include the sunk costs (capital cost or carrying charges) of existing units.

meeting the 10/20 renewable energy goal with and without cost and performance improvements that may occur over the planning period.

Figure 10. Annual Levelized Production Costs for BAU and Meeting the 10/20 Goal.



Achieving the 10/20 renewable energy goal and preserving and expanding energy conservation efforts has little or no impact on the regional economy. Most of the estimated regional impacts are less than one half of one percent. Table 17 summarizes the annual average secondary region economic impacts from meeting the 10/20 renewable energy goal and pursuing energy efficiency improvements more aggressively.

Table 17. Annual Average (2005-2020) Changes for Key Economic Indicators

	Employment		Gross Regional Product		Personal Disposable Income	
	(Persons)	(% Change)	(Million 2001\$)	(% Change)	(Million 2001\$)	(% Change)
10/20 Goals	627	0.00%	-312	-0.01%	73	0.00%
Energy Efficiency (EE)	8,415	0.02%	450	0.02%	776	0.04%
10/20 Goals + EE	4,097	0.01%	-58	0.00%	547	0.03%

The regional economic analysis suggests that meeting the 10/20 renewable energy goal and preserving and expanding energy conservation efforts may, on average, lead to an increase in economic activity. Over time, there may be small increases in regional economic activity in the early years and a small decline in later years from air pollution prevention programs. The impacts from 2005 to 2015 are largely the result of investments made in new renewable energy generation that increase labor demand and have secondary impacts on output and income. Following the investment and construction boom, the region could see some decline in employment, gross regional product and personal disposable income.

In general, accomplishing the 10/20 renewable energy goal probably will lead to small increases in employment and personal income along with a small decline in gross regional product. Preserving and expanding energy conservation efforts within the Transport Region results in small increases in employment, personal disposable income and gross regional product. This is sparked by new energy conservation investments.

10. Utah Programs to Meet the Regional Renewable Energy Goals

a. Summary of Utah Programs

Following the findings of the Grand Canyon Visibility Transport Commission and the Air Pollution Prevention Forum, the Western Regional Air Partnership (WRAP) found that energy efficiency and renewable energy can be effective tools to reduce regional haze and can reduce emissions, improve visibility, reduce energy costs and provide secondary environmental and economic benefits to the region. The WRAP also concluded that implementing both renewable energy and energy efficiency program and policy measures together will yield larger emissions benefits than either energy efficiency or renewable energy measures alone would yield. The U.S. Environmental Protection Agency made similar presumptions in promulgating Section 309(d)(8) of the Regional Haze Rule.

The inclusion of energy efficiency and renewable energy programs in the State Implementation Plan and estimated emission reductions and impacts from them does not cause such programs and estimates to become mandatory and/or federally enforceable. These programs are voluntary state and local programs that were never intended to be federally enforceable.²⁹ The WRAP has explicitly expressed its expectation that these programs will be implemented consistent with local economic, regulatory, and political conditions while protecting cultural resources and values. These programs may be modified, changed, expanded, redirected or eliminated and new programs may be adopted and implemented without seeking approval from the federal government. The projected emission reductions are estimates only. It is expected that these programs and their associated emissions impacts will change over time without requiring a SIP revision. Utah will, as required, report its progress toward meeting the regional 10/20 renewable energy goals in the periodic SIP reviews required under 40 CFR 51.309(d)(10).

Pursuant to 40 CFR 51.309(d)(8)(vi), Table 18 lists the programs that the State of Utah will employ to make its contribution toward meeting the regional renewable energy goals

²⁹ The GCVTC goal is 10 percent of generation from renewable resources in 2005 and 20 percent in 2015. With respect to the requirements of Section 309(d)(8), achieving the 10/20 goal is not mandatory or “enforceable.” This section of the rule simply establishes an “enforceable” requirement for states “to assess progress toward a goal established by the GCVTC with respect to renewable energy.” To the extent they are not able meet the goal, states are required to provide an explanation of why the goals cannot be met. See 64 FR 35754, July 1, 1999. *Regional Haze Regulations Final Rule*.

of supplying 10 percent of its power needs from renewable sources by 2005 and 20 percent by 2015.

Table 18. Utah Renewable Energy Program Descriptions

PROGRAM TYPE	INDIVIDUAL PROGRAMS
Utility Integrated Resource Planning	PacifiCorp Integrated Resource Planning – Renewable Additions
	UAMPS Integrated Resource Planning
Net Metering	Utah Net Metering Program
Green Pricing	PacifiCorp Blue Sky Marketing Program
Financial Incentives	Renewable Energy Systems Tax Credit Program
Government Endorsed Green Power Purchases	Supplemental Environmental Project Program
	Salt Lake City Climate Action Plan Program
Technical Assistance	Million Solar Roofs Partnership Program

b. Potential for Renewable Energy Resources

(1) Renewable energy potential and areas where renewable energy can supply power.

The renewable energy resource potential in Utah and its geographic distribution across the state have been characterized succinctly in the *Renewable Energy Atlas of the West*.³⁰ The Atlas was assembled using best available renewable energy resource maps and data. Data and map sources have been scrupulously documented. The Atlas was used as a source for preparing this section. The existing data and maps are useful to policymakers as a tool for planning. They serve their intended function within the context of the Utah Regional Haze Implementation Plan.

The potential to generate power from renewable energy sources reported in this section is based on the total estimated availability of each type of renewable energy source within Utah. The power production potential for each type of renewable resource is an estimate of what could be developed, not an estimate of what will be developed during any future period of time. The estimates are presented to document that Utah has sufficient renewable energy resource potential to meet the regional goals of generating 10% of its power from renewable resources by 2005 and 20% by 2015. In fact, Utah has the potential to generate much more than would be required to simply meet the regional goals. During the periodic SIP reviews required under 40 CFR 51.309(d)(10), an update

³⁰ Land and Water Fund of the Rockies, Northwest Sustainable Energy for Economic Development, and GreenInfo Network with support from the Hewlett Foundation and the Energy Foundation. *Renewable Energy Atlas of the West: A Guide to the Region's Resource Potential*. Available at www.energyatlas.org.

of information required under 40 CFR 51.309(d)(8) will be incorporated into the Utah Regional Haze Implementation Plan revisions.

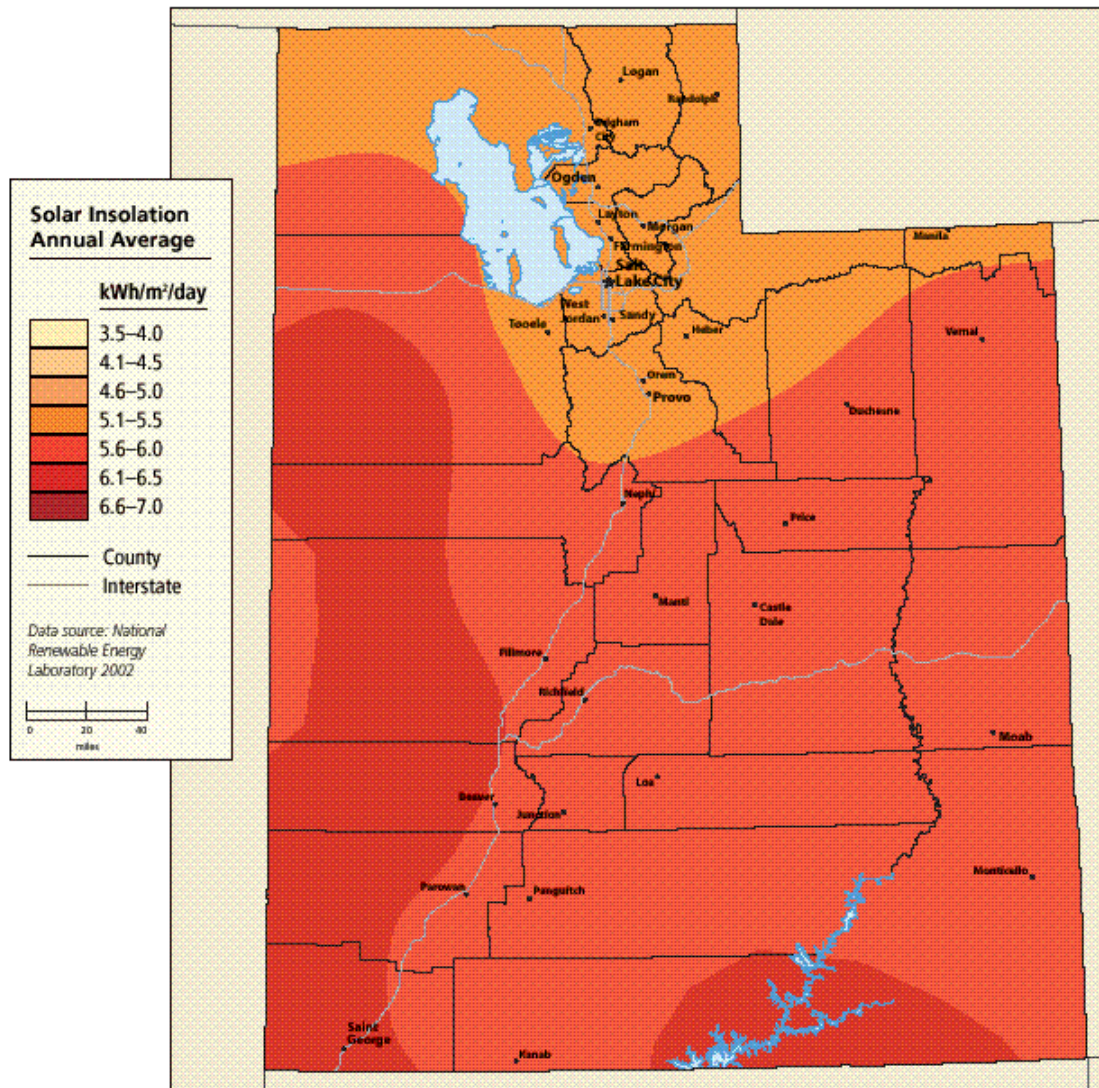
(a) Solar energy potential and distribution. The potential to generate power from incident solar radiation in Utah is estimated to be 69,000,000MWh/yr. Most of this potential is located in the southern and southwestern portions of Utah. Assuming that the systems used to transform Utah's solar energy potential to power operate at a 20 percent capacity factor³¹, there is potential to install approximately 39,400 MW of solar power capacity in Utah. Presently, solar power production costs significantly more than other means for generating power. As a consequence, the vast majority of Utah's solar power potential is not economical to develop for utility system electricity sales at this time. Figure 11 characterizes the distribution and relative potential of the solar energy resource in Utah.

³¹ "Capacity factor" is a value used to express the average percentage of full power production capacity achieved or expected over a given period of time. For example, a generating facility that operates at an average of 60% of its normal full capacity over a measured period has a capacity factor of 0.6 for that period. A capacity factor can apply to an individual generating unit or any collection of generating units. In mathematical terms this can be expressed as:

$$\frac{\text{Installed renewable capacity}}{\text{capacity for the renewable source}} \times \text{capacity factor} = \text{renewable power production}$$

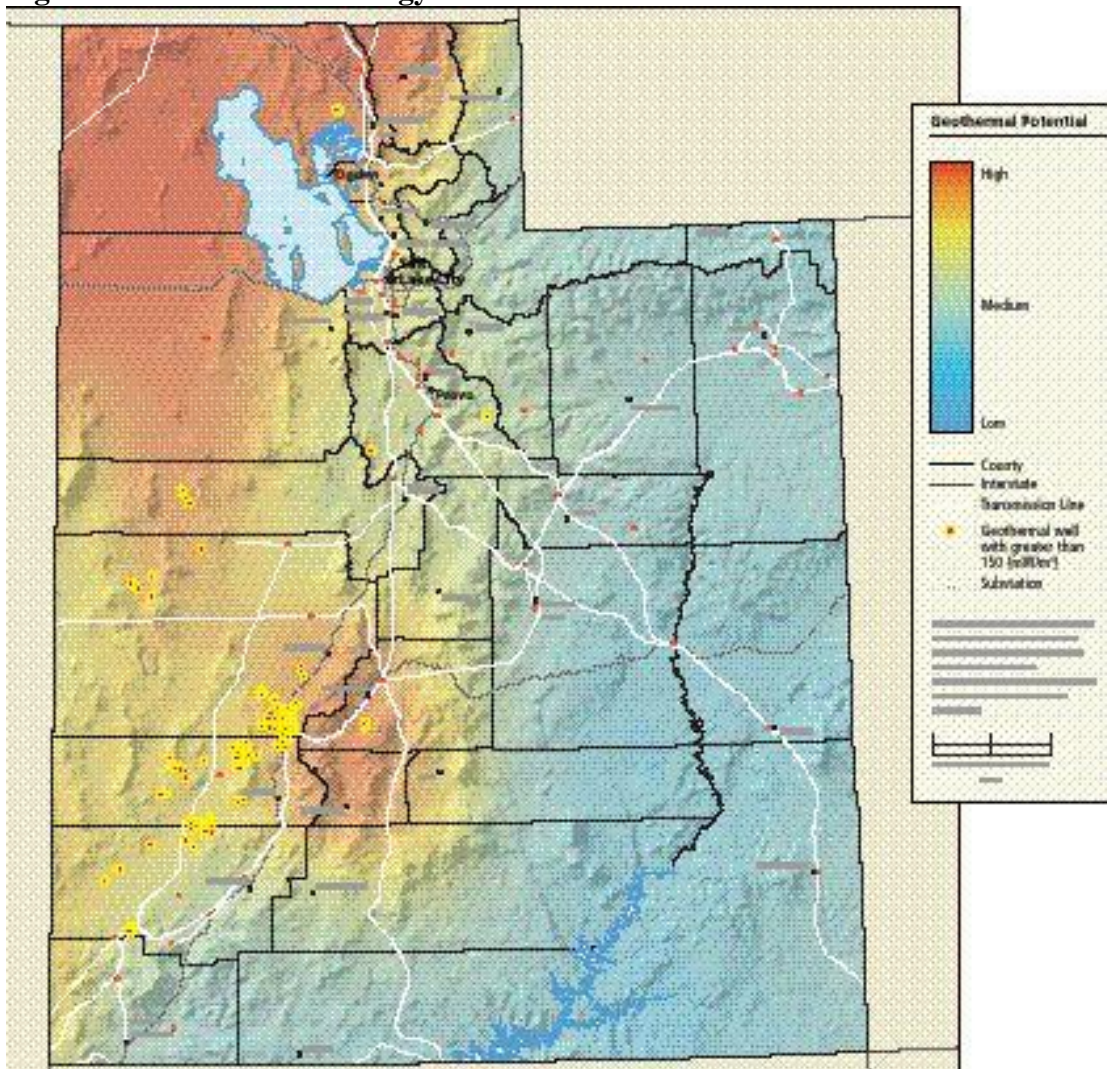
Since the availability of many renewable energy sources varies throughout the day and from day to day, renewable power generators operate at only a portion of their full power production capacity. The capacity factors used in this section to convert the potential power production in Utah from each type of renewable energy source to an estimate of the potential installed renewable energy capacity for each type of renewable resource were developed by the Utah Energy Office based on their experience and information reported in professional papers. It was done to permit readers to more easily compare Utah's existing installed capacity and power production with the installed capacity and power production that might be possible in the future from Utah's renewable energy resources.

Figure 11. Solar Energy Potential in Utah.



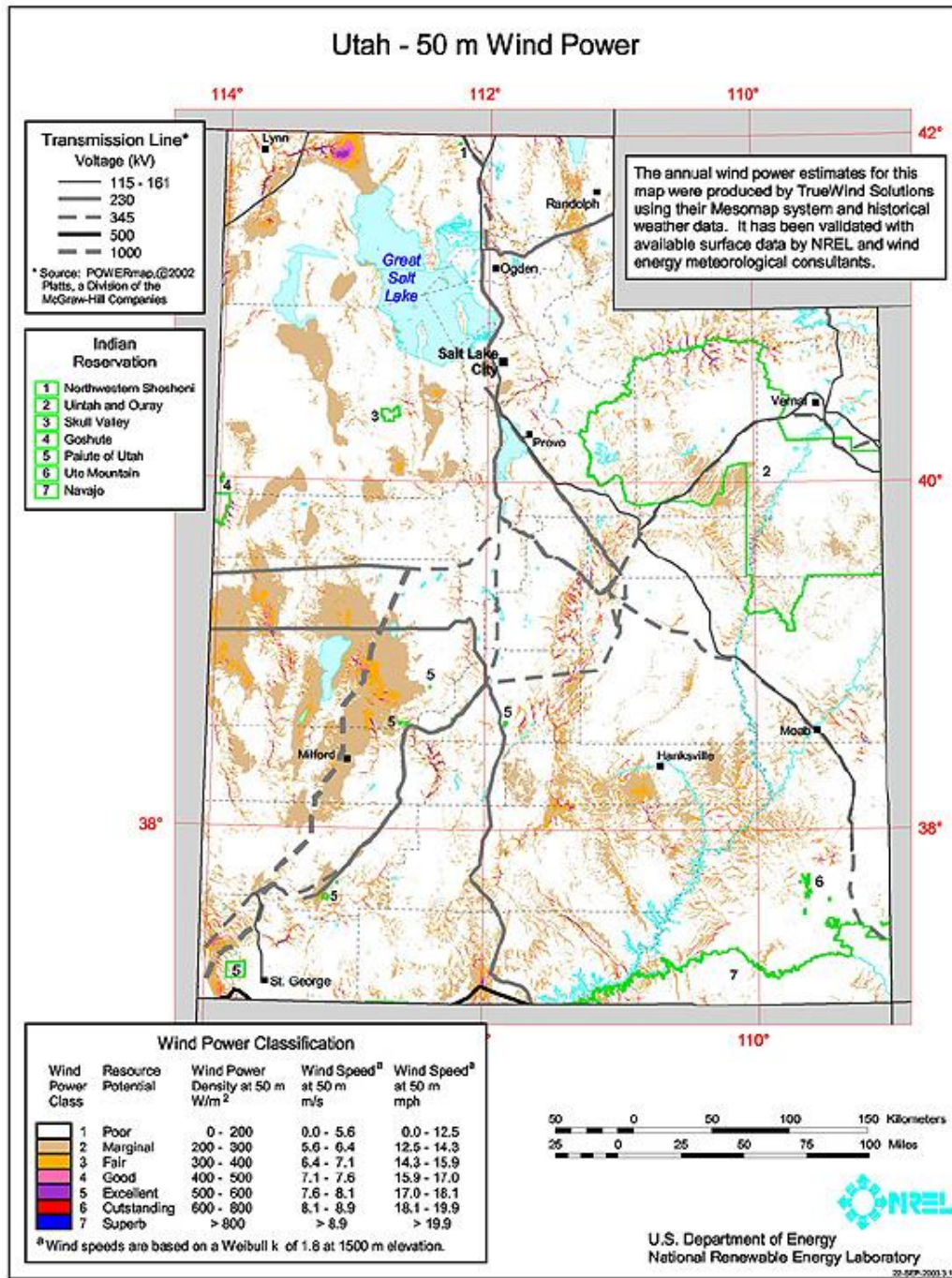
(b) Geothermal energy potential and distribution. Utah is one of the few states to have developed geothermal power plants, 39.8 MW of generation capacity. Utah has substantial, additional, undeveloped geothermal power production potential. The potential to generate power from geothermal sources in Utah is estimated to be 9,000,000 MWh/yr. Assuming that systems used to transform Utah's geothermal energy potential to power operate at a 60 percent capacity factor, there is potential to install approximately 1,700 MW of geothermal generating capacity in Utah. Figure 12 characterizes the distribution and relative potential for producing electricity from geothermal sources in Utah.

Figure 12. Geothermal Energy Potential in Utah.



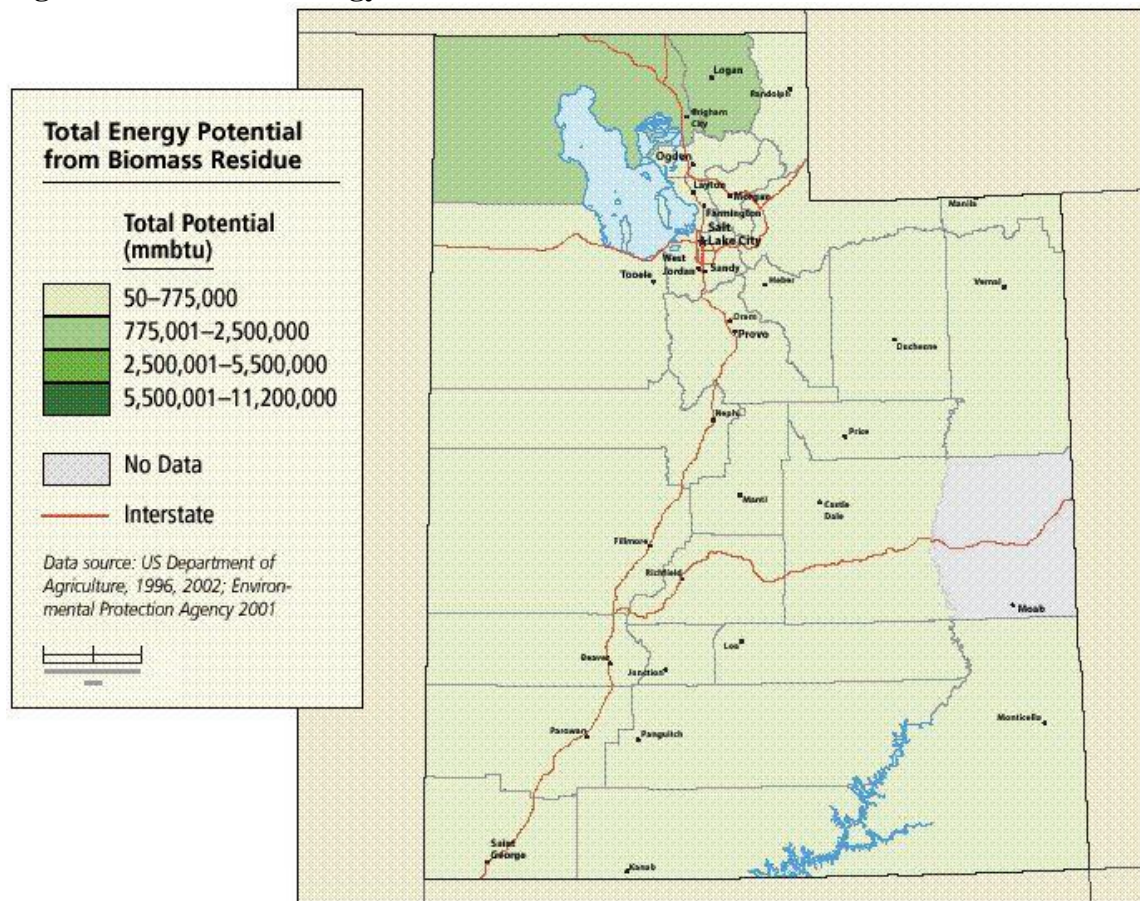
(c) Wind energy potential and distribution. Some areas of Utah have excellent wind energy resources that may be suitable for utility-scale development. The potential to generate power from wind in Utah is estimated to be 23,000,000 MWh/yr. Figure 6 roughly characterizes the distribution and relative potential of the wind energy resource in Utah. The most recent map and estimate of the developable wind resource potential in Utah has been prepared by the Utah Energy Office and the National Renewable Energy Laboratory, and is included below as Figure 13. Assuming that systems used to transform Utah's wind energy potential to power operate at a 32 percent capacity factor, there is potential to install approximately 8,200 MW of wind generating capacity in Utah. Most of the wind energy potential in Utah comes from areas with lower power production capability. Wind power developers generally want to build only in the windiest areas to assure their competitiveness in electricity markets. As a consequence, only a fraction of Utah's overall wind potential will be attractive for wind development in the near term.

Figure 13. Wind Energy Potential in Utah.



(d) Biomass energy potential and distribution. The potential to generate power from landfill gas and plant and animal wastes in Utah is estimated to be 1,000,000 MWh/yr. Most of this potential is located in the northern and northwestern portions of Utah. Assuming that systems used to transform Utah's biomass energy potential to power operate at an 80% capacity factor, there is potential to install approximately 140 MW of biomass generating capacity in Utah. Figure 14 characterizes the distribution and relative potential for generating power from biomass in Utah.

Figure 14. Biomass Energy Potential in Utah.



(e) Landfill gas energy potential. The estimated power production potential from landfill gas in Utah that is embedded in the biomass map and energy production projections was derived from the Environmental Protection Agency Landfill Methane Outreach Program database (2001). The detailed landfill gas database for Utah is presented in Table 19.

Table 19. Utah Land-fill Gas Resources

Project ID #	Landfill ID #	LMOP Territory	Landfill Name	Landfill City	Landfill County	Landfill State	WIP (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner	Project Status	Project Developer	Utilization Type (Direct-Use vs Electricity)	Specific Utilization Type	Capacity (MW)	LFG Flow to Project (mmscfd)	Emission Reductions (MMTCO2E)
1619	1542	3	Salt Lake Valley LF	Salt Lake	Salt Lake	UT	6,700,000	1982	2020	Salt Lake Valley Solid Waste Management Council	Construction	DTE Energy	Direct	Boiler			0.242
1604	1527	3	City of Logan Sanitary Landfill	Logan	Cache	UT	1,400,000	1961	2016	City of Logan	Potential		Electricity				
1630	1553	3	Beaver County LF	Beaver	Beaver	UT	107,648	1968	2014	Beaver City	Unknown		Direct				
1625	1548	3	Blanding LF	Blanding	San Juan	UT	50,780	1956	1995	Blanding City	Unknown		Direct				
1617	1540	3	Bountiful City Sanitary LF	West Bountiful	Davis	UT	2,171,531	1960	2058	City of Bountiful	Unknown		Direct				
1598	1521	3	Brigham City LF	Brigham	Box Elder	UT	693,000	1960	1995	Box Elder County	Unknown		Direct				
1606	1529	3	Callao LF		Juab	UT		1970			Unknown		Direct				
1621	1544	3	Carbon County LF	Price	Carbon	UT	280,000	1956	1995	Carbon County	Unknown		Direct				
1626	1549	3	City of Monticello LF	Monticello	San Juan	UT	36,000	1960	1995	Max Dalton	Unknown		Direct				
1618	1541	3	Davis County Solid Waste Management SSD LF	Layton	Davis	UT	1,840,150	1959	2022	Wasatch Energy Systems	Unknown		Direct				
1642	1565	3	Duchesne County LF	Duchesne	Duchesne	UT		1984	2044	Duchesne & Wasatch Counties	Unknown		Direct				
180128	2074	3	ECDC	East Carbon		UT					Unknown						
1622	1545	3	Emery County LF	Castledale	Emery	UT	212,184	1983	2024	Emery County	Unknown		Direct				
1609	1532	3	Eskdale LF		Millard	UT					Unknown		Direct				
1631	1554	3	Garfield County/John's Valley LF	Garfield	Garfield	UT	16,200	1992	2044	Garfield County	Unknown		Direct				
1632	1555	3	Garfield County/Ticaboo LF	Garfield	Garfield	UT	8,852	1993	2014	Garfield County	Unknown		Direct				
1610	1533	3	Garrison LF	Garrison	Millard	UT	660	1986	2094	Millard County	Unknown		Direct				
1624	1547	3	Grand County LF	Moab	Grand	UT	76,300	1960	2004	Grand County	Unknown		Direct				
1623	1546	3	Green River LF	Green River	Emery	UT	79,205	1965	1995	Green River City	Unknown		Direct				
1599	1522	3	Grouse Creek LF	Grouse Creek	Box Elder	UT	1,760	1980	1995	Box Elder County	Unknown		Direct				
1633	1556	3	Iron County/ Armstrong Pit LF	Cedar	Iron	UT	44,962	1993	2014	Iron County	Unknown		Direct				
1635	1558	3	Kane County/Glendale LF	Glendale	Kane	UT	6,560	1988	2094	Western Kane County SSD# 1	Unknown		Direct				
1634	1557	3	Kane County/Kanab LF	Kanab	Kane	UT	39,680	1981	2044	Western Kane County SSD# 1	Unknown		Direct				
1641	1564	3	Manila City LF	Manila	Daggett	UT	32,120	1974	1995	Manila City/Daggett County	Unknown		Direct				
1611	1534	3	Millard County LF	Delta	Millard	UT	67,650	1986	2034	Millard County	Unknown		Direct				
1607	1530	3	Nephi LF	Nephi	Juab	UT	18,300	1987	2044	Nephi City	Unknown		Direct				

Table 19. (Continued) Utah Land-fill Gas Resources

Project ID #	Landfill ID #	LMOP Territory	Landfill Name	Landfill City	Landfill County	Landfill State	WIP (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner	Project Status	Project Developer	Utilization Type (Direct-Use vs Electricity)	Specific Utilization Type	Capacity (MW)	LFG Flow to Project (mmscfd)	Emission Reductions (MMTCO2E)
1645	1568	3	North Utah County Special Service District LF		Utah	UT	1,707,965	1964	1993		Unknown		Direct				
1600	1523	3	Park Valley LF	Park Valley	Box Elder	UT	2,400	1980	1995	Box Elder County	Unknown		Direct				
1608	1531	3	Partoun LF		Juab	UT					Unknown		Direct				
1614	1537	3	Payson City LF	Payson	Utah	UT	616,029	1950	2014	Payson City Corporation	Unknown		Direct				
1646	1569	3	Provo LF	Provo	Utah	UT	1,131,000	1963	1991	City of Provo	Unknown		Direct				
1605	1528	3	Rich County LF	Laketown	Rich	UT	40,688	1981	2030	Rich County	Unknown		Direct				
1627	1550	3	San Juan County/Bluff LF	Bluff	San Juan	UT	1,600	1980	1995	San Juan County	Unknown		Direct				
1628	1551	3	San Juan County/Halls Crossing LF	Halls Crossing	San Juan	UT	9,464	1970	1995	San Juan County	Unknown		Direct				
1629	1552	3	San Juan County/Mexican Hat LF	Mexican Hat	San Juan	UT	1,600	1980	1995	San Juan County	Unknown		Direct				
1612	1535	3	Sanpete SLF Coop	Spring City	Sanpete	UT	108,396	1989	2066	Sanpete SLF Coop	Unknown		Direct				
1615	1538	3	Santaquin County LF	Santaquin	Utah	UT	262,080	1900	1995	Santaquin City	Unknown		Direct				
1613	1536	3	Sevier County/Sage Flat LF	Glenwood	Sevier	UT	70,200	1993	2024	Sevier County	Unknown		Direct				
1601	1524	3	Snowville LF	Snowville	Box Elder	UT	8,100	1970		Snowville Town	Unknown		Direct				
1616	1539	3	South Utah County SSD/Bayview LF	Utah	Utah	UT	1,100,000	1991	2094	South Utah Valley Solid Waste District	Unknown		Direct				
1637	1560	3	Summit County/Three Mile Canyon LF	Wanship	Summit	UT	358,896	1986	2026	Summit County	Unknown		Direct				
1638	1561	3	Tooele Army Depot LF #1	Tooele	Tooele	UT			1995	Commander Tead	Unknown		Direct				
1639	1562	3	Tooele Army Depot LF #2	Tooele	Tooele	UT			1995	Commander Tead	Unknown		Direct				
1620	1543	3	Transjordan LF	South Jordan	Salt Lake	UT	8,622,936	1955	2021	Trans-Jordan Cities	Unknown		Direct				
1602	1525	3	Tremonton LF	Tremonton	Box Elder	UT	184,600	1970	1995	Box Elder County	Unknown		Direct				
1643	1566	3	Uintah County/Vernal City LF	Vernal	Uintah	UT	2,773,000	1950	2008	Uintah County and Vernal City	Unknown		Direct				
1636	1559	3	Washington County Solid Waste SSD #1 LF	Washington	Washington	UT	1,292,000	1978	2067	Washington County	Unknown		Direct				
1644	1567	3	Weber County LF	Ogden	Weber	UT	3,500,000	1966	1996	Weber County	Unknown		Direct			0.8	
1640	1563	3	Wendover City LF	Wendover	Tooele	UT	118,260	1970	1996	Wendover City	Unknown		Direct				
1603	1526	3	Yost LF	Yost	Box Elder	UT	800	1980	1995	Box Elder County	Unknown		Direct				

J. OTHER GCVTC RECOMMENDATIONS

1. Regulatory History and Requirements

The recommendations of the GCVTC are presented throughout the June 1996 final report with varying degrees of specificity. Not all are included in the Regional Haze Rule. However, some of the recommendations were intended as a menu of options, with no expectation that any geographic area would implement all of them. The GCVTC pointed out in its final report that:

“Some of the Commission's recommendations ask the EPA to take specific actions or institute particular **programs**, in cooperation with the tribes, states and federal agencies as implementing bodies. Other recommendations provide a range of potential policy or strategy **options for consideration** by the EPA and implementing entities. As the EPA develops policies and takes actions based on this report, this distinction between "actions" and "options" should be maintained with diligence. That is, recommendations intended as policy options should not become mandated actions or regulatory programs.” [BOLD emphasis in original.]³²

2. Other State of Utah Long-term Strategy Components

a. Evaluation of Additional Grand Canyon Visibility Transport Commission Recommendations.

Pursuant to 40 CFR 51.309(d)(9), Utah has evaluated the “additional” recommendations of the Grand Canyon Visibility Transport Commission to determine if any of these recommendations can be practicably included in this implementation plan. Utah reviewed the GCVTC's 1996 report, *Recommendations for Improving Western Vistas*, to identify those recommendations that were not incorporated into Section 309 of the Regional Haze Rule.

b. Implementation of Additional Recommendations.

Based on the evaluation made by the State of Utah, no additional measures have been identified as being practicable or necessary to demonstrate reasonable progress. *Report to the Environmental Protection Agency and the Public to Satisfy the Requirements of 40 CFR 51.309(d)(9)* includes a complete list of all additional recommendations and their status.³³ This report reviewed and updated if necessary in 2008, 2013, and 2018.

³² *Recommendations for Improving Western Vistas*, page i.

³³ Utah Division of Air Quality. *Report to the Environmental Protection Agency and the Public to Satisfy the Requirements of 40 CFR 51.309(d)(9)*. Salt Lake City, Utah. December, 2003.

K. PROJECTION OF VISIBILITY IMPROVEMENT ANTICIPATED FROM LONG-TERM STRATEGY

The Western Regional Air Partnership performed extensive analysis and modeling in order to determine the impact of the regional haze program on visibility at the 16 Class I areas on the Colorado Plateau. This work was performed by several contractors under the direction of various technical and policy forums of the WRAP.

This work began with development of a comprehensive inventory of emissions throughout the region for all categories of sources. In addition, econometric models and new technology profiles were used to project changes in those emissions over time that are expected from implementation of current requirements under the CAA. The WRAP also estimated emission changes resulting from the programs contained in the long-term strategy for regional haze under 40 CFR 51.309.

The emission inventories and projections were used by the WRAP Regional Modeling Center to estimate aerosol concentrations and visibility at each of the 16 Class I areas. WRAP also developed estimates of aerosol concentrations and visibility for the non-GCVTC Class I areas. The WRAP Regional Modeling Center used the Community Multi-scale air Quality (CMAQ) model to estimate aerosol concentrations from the emission inventories and projections.

The WRAP developed a Technical Support Document (TSD) that contains detailed descriptions of the emissions inventory and projection methods as well as the air quality modeling techniques and results. The following sections contain an overview of the projected changes in emissions and visibility resulting from the implementation of the Regional Haze Rule.

1. Effect on Emissions of Long-term Strategy Components

a. Inventory Methodology and Scope

The base WRAP emission inventories used for assessment of visibility included the following pollutants:

- Volatile Organic Compounds (VOCs);
- Oxides of Nitrogen (NOX);
- Carbon Monoxide (CO);
- Sulfur Dioxide (SO₂);
- Particulate Matter smaller than 10 microns (PM₁₀);
- Particulate Matter smaller than 2.5 microns (PM_{2.5}); and
- Ammonia (NH₃).

For visibility modeling, the PM_{2.5} emissions inventory was broken into components, or species, representing the key visibility impairing species of interest. This breakdown is

necessary since each component has a different effect on visibility. These PM_{2.5} species are organic carbon particles (OC), elemental carbon particles (EC), and other fine particles such as soils and dusts. The factors used to allocate PM_{2.5} into its components are based on source specific speciation factors. In addition, the coarse material (CM) fraction of PM₁₀ (i.e., PM₁₀ minus PM_{2.5}) was also computed, since coarse particulate matter has a different effect on visibility than fine particulate matter.

The geographic domain for the inventory included the 22 states west of the Mississippi River, and portions of Mexico and Canada. A detailed base year emission inventory was developed for 1996 and included emissions from all of the following categories of sources:

- Area Sources;
- Stationary Point Sources;
- Mobile Sources (both on-road and non-road);
- Road Dust (from both paved and unpaved road surfaces);
- Fire Emissions (agricultural burning, prescribed fire, and wild fire); and
- Biogenic Sources.

In addition to the 1996 base year emission inventory used for model validation, a projected base year emission inventory for the year 2018 was developed from the base 1996 inventory and other information related to growth and technology issues. A detailed discussion of the emission inventories and projections is contained at the beginning of Chapter 1 of the WRAP TSD. This 2018 base case emission inventory was then modified to reflect the impact of the additional regional haze control strategies required by the Regional Haze Rule. This is referred to as “2018...(All 309 Control Strategies)” in the tables below.

UDAQ staff reviewed the Utah emission inventory for consistency and provided feedback to WRAP on areas of the inventory that should be improved in the future. UDAQ staff concluded that the 1996 inventory was adequate for regional haze modeling given the uncertainties in any emission inventory process. UDAQ staff also reviewed the 2018 emission growth and projection factors used to develop the 2018 inventory and found the projection to be within the range expected from long range economic projections.

b. Projected Changes in Emissions for Utah

The changes in overall emissions for the State of Utah are summarized in Table 20. As shown, emissions of sulfur dioxide are expected to decrease by 2% by 2018. This reduction is due primarily to the long-term strategy for stationary sources of sulfur dioxide described in Part E that will generate a 16% reduction in emissions from stationary sources by 2018. Also, emissions of oxides of nitrogen and volatile organic compounds are expected to decline by 25% and 29%, respectively, due to the implementation of new federal engine standards and fuel standards described in Part F. Table 21 shows similar emission reductions for the nine-state GCVTC region, except that regionally, sulfur dioxide emissions will be reduced by 22%. The reason Utah’s

reduction of sulfur dioxide is smaller than that in the nine states is that the level of pollution controls on facilities in Utah generally is better than that in several other states. The detailed county-level emission inventories for the entire WRAP region are included in the WRAP TSD.

Table 20. Summary of the Change in Emissions from 1996-2018 for Utah Sources (Thousands of Tons per Year)

	VOC	NO _x	SO ₂	PM _{2.5} *	CM
1996	172.2	269.6	66.8	85.4	63.7
2018 w/309	122.4	202.7	65.6	87.3	71.6
% Change	-29%	-25%	-2%	2%	12%

*PM_{2.5} includes organic carbon, elemental carbon, and fine soils/dusts.

Table 21. Changes in Emissions from 1996 - 2018 for 9 GCVTC States (Thousands of tons per year)

	VOC	NO _x	SO ₂	PM _{2.5} *	CM
1996	3,325.3	3,952.1	1,036.3	1,196.7	1,170.6
2018 w/309	2,339.2	2,691.8	808.9	1,228.3	1,198.4
% Change	-30%	-32%	-22%	3%	2%

*PM_{2.5} includes organic carbon, elemental carbon, and fine soils/dusts.

2. Projected Changes in Visual Air Quality

a. Applicable Class I Areas

This projection of visibility improvement covers the 16 Class I areas of the Colorado Plateau, as defined in 40 CFR 51.309(b)(1).

b. Projected Visibility Improvement

Pursuant to 40 CFR 51.309(d)(2), Tables 22 and 23 on the following pages indicate the projected visibility improvement in deciviews³⁴ for each of the 16 Class I areas. These projections were made for the 20% worst days and 20% best days, and is expressed in deciview (dV). The third column represents the expected conditions in 2018 without the implementation of the 309 strategies and programs, and the last column represents expected conditions in 2018 with 309 strategies and programs. These results are from the technical work conducted by the WRAP, which evaluated the visibility improvements resulting from the application of the regional haze control strategies and programs described in Chapter 2 of the WRAP TSD. Chapter 2 and Appendix A of the WRAP

³⁴ Deciview means a measurement of visibility impairment. Its method of calculation is defined in 40 CFR 51.301, and is reprinted in Appendix A. Lower deciview numbers indicate better visibility, while higher numbers indicate more impaired visibility.

TSD describe the control strategies and programs modeled for improvement of visibility by 2018.

Table 22. Projected Visibility Improvement at the 16 Colorado Plateau Class I Areas in 2018, on the Average 20% Best Visibility Days, Resulting from Implementation of "All §309 Control Strategies"

Colorado Plateau Class I Area	State	2018 - 20% Best Days' Visibility (dV) (Base Case - all controls "on the books" as of 2002)	2018 - 20% Best Days' Visibility (dV) (All §309 Control Strategies)
Grand Canyon National Park	AZ	4.76	4.64
Mount Baldy Wilderness	AZ	5.49	5.36
Petrified Forest National Park	AZ	5.18	5.10
Sycamore Canyon Wilderness	AZ	4.85	4.75
Black Canyon of the Gunnison NP Wilderness	CO	3.89	3.75
Flat Tops Wilderness	CO	3.96	3.81
Maroon Bells Wilderness	CO	3.90	3.80
Mesa Verde National Park	CO	4.40	4.33
Weminuche Wilderness	CO	3.89	3.74
West Elk Wilderness	CO	3.97	3.82
San Pedro Parks Wilderness	NM	5.59	5.36
Arches National Park	UT	4.85	4.61
Bryce Canyon National Park	UT	3.91	3.89
Canyonlands National Park	UT	4.87	4.67
Capital Reef National Park	UT	4.85	4.75
Zion National Park	UT	3.81	3.75

All 16 of the Class I areas show visibility improvements between the base case expected conditions in 2018 without the 309 strategies and programs, and the expected conditions in 2018 with the 309 strategies and programs.

Table 23. Projected Visibility Improvement at the 16 Colorado Plateau Class I Areas in 2018 on the Average 20% Worst Days, Resulting from Implementation of "All §309 Control Strategies"

Colorado Plateau Class I Area	State	2018 – 20% Worst Days' Visibility (dV) (Base Case – all controls “on the books” as of 2002)	2018 – 20% Worst Days' Visibility (dV) (All §309 Control Strategies)
Grand Canyon National Park	AZ	11.62	11.51
Mount Baldy Wilderness	AZ	12.22	11.96
Petrified Forest National Park	AZ	11.99	11.74
Sycamore Canyon Wilderness	AZ	11.63	11.48
Black Canyon of the Gunnison NP Wilderness	CO	10.90	10.60
Flat Tops Wilderness	CO	11.04	10.73
Maroon Bells Wilderness	CO	11.15	10.84
Mesa Verde National Park	CO	12.24	11.84
Weminuche Wilderness	CO	11.19	10.84
West Elk Wilderness	CO	11.08	10.72
San Pedro Parks Wilderness	NM	12.33	11.71
Arches National Park	UT	12.41	12.15
Bryce Canyon National Park	UT	12.26	11.95
Canyonlands National Park	UT	12.41	12.18
Capital Reef National Park	UT	12.51	12.36
Zion National Park	UT	12.13	12.03

All 16 of the Class I areas show visibility improvements between the base case expected conditions in 2018 without the 309 strategies and programs, and the expected conditions in 2018 with the 309 strategies and programs.

L. PERIODIC IMPLEMENTATION PLAN REVISIONS

1. Periodic Progress Reports for Demonstrating Reasonable Progress.

Pursuant to 40 CFR 51.309(d)(10)(i), the State of Utah shall submit to EPA, as a SIP revision, periodic progress reports for the years 2008, 2013, and 2018 for the purpose of demonstrating reasonable progress in Class I areas within Utah, and Class I areas outside Utah that are affected by emissions from Utah. This demonstration may be conducted by the WRAP, with assistance from Utah, and shall address the elements listed under 40 CFR 51.309(d)(10)(i)(A) through (G), as summarized below:

- Implementation status of 2003 SIP measures;
- Summary of emissions reductions;
- Assessment of most/least impaired days;
- Analysis of emission reductions by pollutant;
- Significant changes in anthropogenic emissions;
- Assessment of 2003 SIP sufficiency; and
- Assessment of visibility monitoring strategy.

2. Actions To Be Taken Concurrent with Periodic Progress Reports.

Pursuant to 40 CFR 51.309(d)(10)(ii), the State of Utah shall take one of the following actions based upon information contained in each periodic progress report:

- Provide a negative declaration statement to EPA saying that no implementation plan revision is needed if reasonable progress is being made, in accordance with section L.1 above;
- If the state finds that the implementation plan is inadequate to ensure reasonable progress due to emissions from outside the state, Utah shall notify EPA and the other contributing state(s), and initiate efforts through a regional planning process to address the emissions in question. The State of Utah shall identify in the next progress report the outcome of this regional planning effort, including any additional strategies that were developed to address the plan's deficiencies;
- If the state finds that the implementation plan is inadequate to ensure reasonable progress due to emissions from another country, Utah shall notify EPA and provide information on the impairment being caused by these emissions; or
- If the state finds that the implementation plan is inadequate to ensure reasonable progress due to emissions from within Utah, Utah shall develop additional

strategies to address the plan deficiencies and revise the implementation plan no later than one year from the date that the progress report was due.

M. STATE PLANNING/INTERSTATE COORDINATION AND TRIBAL IMPLEMENTATION

1. Participation in Regional Planning and Coordination

Pursuant to 40 CFR 51.309(d)(11), the State of Utah has participated in regional planning and coordination with other states in developing its emission reduction strategies under 40 CFR 51.309, related to protecting the 16 Class I areas of the Colorado Plateau. This participation was through the WRAP.

2. Applicability to Tribal Lands

Pursuant to 40 CFR 51.309(d)(12), and in accordance with the Tribal Authority Rule, the Tribe whose lands are surrounded by the State of Utah have the option to develop a regional haze TIP for their lands to assure reasonable progress in the 16 Class I areas of the Colorado Plateau. As such, no provisions of this chapter of the implementation plan shall be construed as being applicable to tribal lands.